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Original Articles

THE VISCOSITY OF THE BLOOD;

ITS VALUE IN CLINICAL MEDICINE.*

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The peripheral resistance to the circulation of the blood is important in general pathology. On the degree of this resistance depends the cardiac energy required to maintain the circulation, as well as the tension of the circulating fluid, with its far-reaching influences on nutrition. Two factors dominate and control this resistance in accordance with well recognized physical laws. These factors are (1) the changing caliber of the arterioles, (2) the chemico-physical characters of the blood. That the first is much the more important there can be no doubt; but that the second, as indicated by its viscosity, is entitled to careful study will be evident on the slightest examination. Huerthle, for instance, calculated that the work done by the heart of the dog is more than four times as great as it would be if the blood vessels were filled with distilled water instead of blood. This difference is due to its viscosity, which is four and seven-tenths times that of water. In the human subject it is slightly greater, the average, according to Hirsch and Beck,[1] being 5.1.

There is not entire agreement among different observers as to the average normal viscosity of human blood. Determann[2] found it 4.7 in man and 4.5 in women, and Ewart[3] even less. Kottmann, on the other hand, makes it 5.11, agreeing with Hirsch and Beck. My own observations, covering a considerable number of cases make it a little less than five. Physiologic variations are constantly occurring, and their limits are not yet definitely established. It appears to me that variations below 4.5 and above 5.5, if persistent, may well be regarded as abnormal.

Under pathologic conditions the viscosity has been found to vary from three to nine times that of distilled water. Such variations in the internal friction and cohesion of the blood must have a tremendous effect on the physics of the circulation; while the diagnostic and therapeutic problems suggested are of the first importance.

The volume of any fluid which will pass through a capillary tube, under given conditions is entirely dependent on its viscosity, and if the co-efficient of viscosity is known, can be calculated with mathematical exactness. Such a calculation, however, expressing the viscosity in absolute terms is obviously neither necessary nor practical for clinical medicine. As scientific physicians, however, we should understand the general principles on which these calculations are based, and these I will therefore briefly outline.

The factors which influence the rate of flow are the diameter and length of the capillary tube, the pressure applied to the fluid, and, finally, its viscosity. The smaller the diameter of the capillary tube the greater, relatively to the moving volume of fluid, becomes the surface in contact with the wall of the tube. The friction between these surfaces is one of the greatest obstacles to be overcome. Molecules of fluid in actual contact with the wall of the tube probably remain stationary, and the flow is entirely due to the intromolecular motion of the fluid, the rate of flow increasing toward the center of the moving column. Hence, the larger the lumen of the tube, the greater will be the velocity of the center of the moving stream, which means not only a greater absolute flow, but a greater flow relatively to the size of the tube. Thus the changing caliber of the arterioles influences the velocity and consequently the volume of blood flowing through them.

It is furthermore obvious that the longer the capillary tube of a given dimension the greater the friction. The length of the tube is, therefore, an importa ' actor.

The rate of flow will also be directly .. uenced by its pressure. Under normal conditions blood flows through the arterioles under a pressure equal to that exerted by a column of mercury from 100 to 135 mm. in height. Other conditions remaining the same, the rate of flow will bear a certain definite ratio to the pressure.

Finally, the rate of flow of the fluid will be less .. greater its viscosity. Viscosity is a physical property dependent on the freedom of motion between the molecules or particles which constitute the fluid. As in the case of blood, the fluid may hold in suspension solid particles (corpuscles) which will greatly influence the viscosity. Heubner calculated that two-thirds to three-fourths of the viscosity of the blood is due to the corpuscles. In some of the current literature the viscosity of the blood is expressed in absolute terms derived from calculations based on the data just given. Different mathematical formulas, based on Poisseules law, have been used for this purpose.

As Ostwald's physico-chemical measurements form the basis of most of the work along this line, I will quote the one used by him.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Muenchener med. Wchnschr., 1900, xlvii, 1685; Deutsches Arch. f. klin. med., Leipzig, lxix, 505; Id., lxxii, 560; Arch. f. exper. Path. u. Pharmakol., Leipzig, liv, 54. The following references may also be consulted: Burton-Opitz, R.: Am. Med., Phila., 1900, vii, 111; Jour. Exp. Med., 1906, viii, 59 and 240; Abstr. Am. Med., N. S., i, 42; Arch. f. d. ges. Physiol., cxii, 189.

2. Verhandl. d. Congr. f. innere Med., Wiesb., xx, 476; Ztschr. f. klin. Med., lix, 283.

3. Brit. Med. Jour., Lond., ii, supplement, p. 10.

4. Ostwald: Physico-chemical Measurements.

The volume of liquid, v, flowing from a long capillary tube is $v = \frac{xpr^4t}{8cl}$, where x is 3.1416, p the pressure, r the radius, l the length of the tube, all expressed in millimeters, and t, the time, expressed in seconds; c is a factor depending on the nature of the liquid and on the temperature, and is called the co-efficient of viscosity. It is consequently found by means of the equation, $c = \frac{xpr^4t}{8vl}$, and is given in the absolute metric system if the pressure is expressed in ergs x cm.—3, the radius and length in cm., the volume in cc., and the time in seconds.

Such calculations as these are obviously too technical for clinical use, and are not at all necessary for the purposes of clinical medicine. What is needed is, first, some convenient uniform standard of comparison which will express the relative viscosity, and available at all times and places; and, second, a method for determining viscosity sufficiently simple in its character to make it practicable for routine examinations.

Such a standard is found in distilled water, and nearly all the work which has been done up to this time expresses the viscosity of the blood as so many times

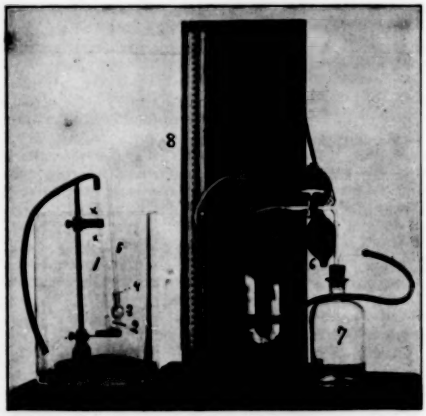

Fig. 1.—Hirsch and Beck's viscosity apparatus as modified by Determann, Bence and others.

that of distilled water, even though giving along with it the results of the technical calculations above referred to which express it in absolute terms.

The original investigations by Poiseuille, dealing with the viscosity of the blood were made with defibrinated blood. While having a scientific interest, this method involves such a wide departure from physiologic conditions as to be devoid of clinical interest. Huerthle was the first investigator to use the uncoagulated blood of the lower animal. To Hirsch and Beck, however, belong the credit of making a practical application of the data and methods of Huerthle and preceding investigators to the requirements of clinical medicine. Their apparatus which was subsequently modified by Determann, Bence[5] and others is shown in Figure 1. It consists of a glass jar 4x7 inches and 10 inches high, which contains the measuring apparatus (1) attached to the standard by a clamp. The purpose of this jar is to immerse the apparatus in water at 38 C. so that the temperature conditions will not change during the observation. The measuring apparatus consists of the bent tube (2), the lower portion of which, including the ampulla (3), is filled with blood at (4) by removing the closed tube (5). The blood is drawn by suction through the capillary tube to the upper X, and is forced back by a uniform pressure to the lower X, the time required for traveling this distance under given conditions of pressure, temperature, etc., constituting the basis for comparison in making the necessary calculations.

Instead of using water Hirsch and Beck used freshly distilled anilin oil, the viscosity of which is known, but this requires a second calculation to reduce it to the standard of distilled water. The pressure, which is positive and not negative, as in my own method and that of Hess, is produced by the bulb (6) acting through the flask (7) and is regulated by the manometer (8). A tube of calcium chlorid is interposed to dehydrate the air before it comes in contact with the blood. Their observations are made under a uniform pressure of 450 mm. of benzol equal to 400 of water. It will be noted that this pressure does not even distantly approximate the physiologic pressure maintained in the circulating mammalian blood vessels. This usually exceeds 100 mm. of mercury, which would be equivalent to about 1,350 mm. of water.

The apparatus and method is too cumbersome and technical to fulfill the requirements above indicated, and after a little experience with it I set about to simplify the method. Absolute scientific accuracy is not required in any clinical investigation of this sort. Determann admits a possible technical variation of two-tenths to five-tenths of a second with the same apparatus, same blood and the same operator. It is largely a question of accuracy of co-ordinating two distinct movements at the same instant of time, and it requires considerable practice to avoid an error of a considerable fraction of a second. Furthermore the physical condition of the blood and therefore its viscosity is undergoing constant fluctuations depending on the amount of food and liquid absorbed, perspiration, urinary secretions and probably many other factors, concerning some of which we know little or nothing. Approximate results easily and quickly attained were therefore the objects in view.

The principle of forcing the blood through a given length of a capillary tube under definite pressure and temperature conditions and comparing the time with that which it takes to force distilled water through the same tube under the same conditions appeared to be the only fundamental requisites. The exact size of the capillary tube is not important, and really varied considerably in the appliances used by Hirsch and Beck, Ewart, Determann and others. Poiseuille, for instance, used tubes varying from .139 to .659 mm. and Hirsch and Beck tubes varying from .25 to .35 mm.

As a result of my investigation I am now using the very simple appliance[6] shown in Fig. 2.

It consists of a capillary pipette (3) made from a piece of glass tubing with a lumen of 5 mm. One end is tapered (4) so that the rubber bulb (2) can be fitted over it easily. The other end is drawn out into a fine

5. Ztschr. f. klin. Med., Berl., lviii, 203.

6. This is much simpler than the apparatus that I showed at the Chicago meeting, as I have been able to eliminate the T-shaped glass tube with rubber tubing and clamp, which makes it less cumbersome.

capillary tube, the exact size of which must be determined by experience. This is substantially the same as the capillary pipette used in opsonic work. A convenient length for the capillary portion of the tube is about six inches, and it should be made so that distilled water will pass through it under the negative pressure of the bulb in about five or six seconds. A blue pencil, or, much better, a fine ink mark is made at (5) just before the lumen of the capillary tube begins to enlarge, and each experiment terminates at the moment when the moving column reaches this mark.

The first thing to do is to "standardize" the tube with distilled water which constitutes the unit of comparison. The rubber bulb (2) is taken between the thumb and index finger of the right hand and compressed until its inner surfaces are in contact. It is important that this technic should be accurately followed. If this is done, there will not be any substantial variation in the negative pressure of the same bulb in different experiments. If, however, the bulb is compressed flatly between, say, the palmar surfaces of the thumb and two fingers, the pressure will be increased from forty to fifty per cent. and the results entirely vitiated.

The precise negative pressure will vary with different bulbs. With the one that I am working with, which measures 1½ x 2½ inches and is taken from a 10 c.c. volumetric pipette in my clinical laboratory, it is equal, approximately, to 50 mm. of mercury. Within reasonable limits the exact pressure is unimportant, so that it

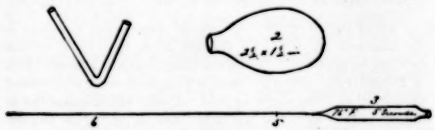

Fig. 2.—The author's viscosity apparatus.

is the same with the blood that it was with the distilled water.

This bulb thus compressed is fitted over the capillary pipette at (4) and the pressure released. Air flows into the capillary tube under a constant negative pressure. With a stop-watch in the other hand, the end of the pipette is immersed in distilled water contained in a watch crystal and the stop-watch started at the same instant. The watch is stopped when the column of water reaches the mark at (5). This is repeated three or four times, and if there is any variation the mean of the several observations is taken and a label attached to the tube showing the result and also the temperature of the room.

The temperature of the room is important because the viscosity falls about two per cent. with each degree centigrade of rise of temperature, and if the observation on the blood is made at a temperature substantially different from that in which it was standardized with distilled water, corresponding corrections must be made.

The capillary tube can be made so that it takes distilled water anywhere from three to six or seven seconds to reach the mark: about five or six seconds is the most convenient and practical time, and a little practice will enable one to make the pipette of the proper size. If it takes too long, break off a little of the pipette, if not long enough a new one must be made.

The clinical observation is made as follows: One arm of the V-shaped tube, made of glass tubing with a lumen of 1 1/2 mm. is partially filled with blood by holding it against the under surface of a drop exuding from the side of the tip of the finger, as I prefer, or the lobe of the ear. Five or six drops of blood are required. This tube is then held by an assistant or in a suitable clamp by the arm through which the blood has been collected, leaving the clean arm of the tube for observation. The bulb and capillary tube are arranged precisely as above described for the experiment with distilled water and the end of the capillary tube passed down the clean arm of the V-shaped tube until it is close to the surface of the specimen of blood. Then with the stop-watch in the other hand it is quickly plunged into the blood and the stop-watch started at the same instant, the watch being stopped, as before, when the moving column reaches the mark at (5). It is then simply a matter of dividing the time required by the blood to pass through

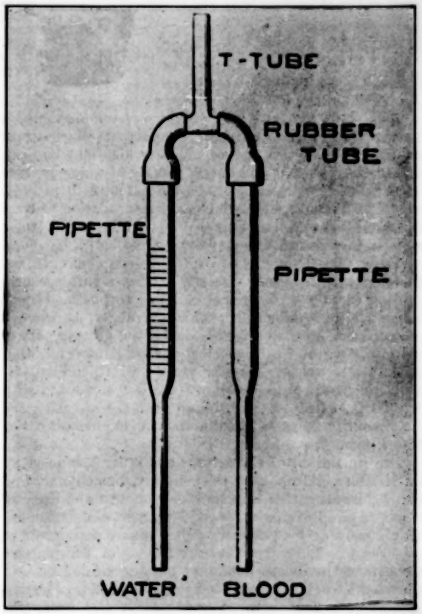

Fig. 3.—Hess' viscosity apparatus.

the capillary tube, by the time required by the distilled water, which in the pipette illustrated was five seconds. If with this pipette it would take twenty-five seconds for the blood to reach the mark the viscosity of the blood would be just five.

This observation can be made in less than three minutes, and is, in my opinion, sufficiently accurate to serve the purposes of clinical medicine.

Sometimes the blood coagulates so rapidly that only a single observation can be made. This can be obviated by placing a crystal of hirudin in the V-shaped tube, as recommended by Bence and Determann. The blood will then remain fluid for twenty or thirty minutes. The greatest objection that I have found to the use of

hirudin is that it is very hygroscopic and must be kept hermetically sealed or in a chamber with a desiccator. Its use, however, is quite unobjectionable, as it does not change the viscosity in the least or even modify rouleaux formation, so that it is available for other purposes in which slow coagulation is desirable as well as the determination of viscosity.

The capillary tube is cleaned in the usual way, first by washing with distilled water then with alcohol and finally with ether, and drying with a current of air. Should the tube be spoiled, as often happens, it only costs a fraction of a cent and a few minutes' time to make another.

The apparatus of Hess (Fig. 3) represents another attempt at simplification. I have neither seen nor used it, but believe that my own is simpler and more practical. With Hess's apparatus distilled water must be used at the same time with the blood (which complicates the procedure) and the two are drawn through their respective capillary tubes presumably by a negative pressure, the source of which is not shown in the illustration.

CLINICAL APPLICATION.

As already indicated, the viscosity of the blood under normal conditions undergoes considerable fluctuations owing to a variety of causes, among which may be mentioned the ingestion of a large quantity of water or food. Heavy muscular work has also been found to increase viscosity. Possibly by the increased transudation of fluid through the skin the same effect results as follows a sweating by electric light and other hot baths.

These variations will be readily understood when the factors which influence viscosity are taken into account. Among these the percentage of blood corpuscles is perhaps the most important, which Heubner, as already stated, calculates is accountable for the greater part of its viscosity. It has been clearly shown, however, that there are constituents in the plasma which influence it very much. It is probably in some way connected with the fibrin, as it has been found that the viscosity and coagulability increase and diminish together within certain limits.

The inhalation of chloroform and ether has no effect on viscosity. Alcohol, on the contrary, immediately and greatly increases it. This has been found to be the case whether alcohol was introduced into the circulation intravenously or by injection either into the stomach or duodenum. This experimental fact is of considerable importance in the pathology of chronic alcoholism and may help to explain some of its phenomena. The immediate effect of hemorrhage is to greatly lower the viscosity of the blood. This effect is quite lasting, contrary to that of the intravenous infusion of normal saline solution which also lowers viscosity, the effect being very evanescent, however.

The diminished viscosity of the blood following venesection very probably has much to do with the well known therapeutic results in the way of relieving an embarrassed heart, etc., under certain pathologic conditions. There is no doubt whatever that it greatly lowers the resistance in the peripheral circulation, as well as the volume of the circulating fluid.

Asphyxia influences viscosity more promptly and more profoundly, perhaps, than any other known factor. This is true whether the asphyxia is local or general. In one experiment, for instance, Determann found that by placing a ligature around one arm for twenty minutes, with the production of marked local stasis, the viscosity of the blood drawn from a finger on that side was nearly twice as great as in blood from the other arm. It had increased from 4.63 to 8.83.

These are among the most important observations made along this line. Their influence in pathology is far reaching. They clearly show why the heart becomes embarrassed, and raises a doubt as to the exact importance of vaso-constriction under such conditions, although it is, of course, quite possible that this may occur also. The direct effect of CO_2 in increasing the viscosity has not only been experimentally demonstrated, but Bence has actually lowered it again by the inhalation of oxygen, an observation which is also of great importance.

The clinical application of these facts is probably not limited to the acute conditions of cardiac embarrassment in which life is endangered, and in which venesection and the inhalation of oxygen are clearly shown to be indicated, but probably extends to the subacute or chronic conditions of respiratory incapacity.

An interesting observation of Determann, confirmed by others, is that in vegetarians the viscosity was materially lower than in meat eaters. The average for vegetarians was 4.32 and for meat eaters 4.85. As might be expected, the viscosity of the blood is low in the anemias. In a fatal case of splenic anemia under my observation the viscosity was less than 3. The red corpuscles had dropped to about 200,000 before the patient died.

One of the important questions concerning viscosity is its relation to Bright's disease and especially to the cardiac hypertrophy found in these cases. The question is exceedingly complex and not nearly so easily solved as might at first sight appear. There seems to be little doubt that when the average case of Bright's disease presents itself for clinical observation to those who were studying the viscosity of the blood that the latter was nearly always normal or low, and this without very much reference to the blood pressure at the time. In my own experience the viscosity has usually been between three and four, but every case was more or less anemic. The observations of Bence were to the same effect.

Hirsch and Beck studied twenty-four cases which were divided into three groups as follows: The first group included acute and subacute parenchymatous cases in which the following viscosities occurred: 5.29, 2.75, 4.28, 3.81, 2.92. The second group, chronic parenchymatous nephritis, with secondary contractions, contained the following: 4.87, 4.24, 4.26, 4.79, 4.74, 3.05, 3.42, 2.52. The third group, chronic interstitial nephritis, with primary contractions, showed: 5.91, 4.70, 4.89, 9.21, 4.52. It is interesting to note that the lowest viscosity in the entire series, namely, the last case in the second group, with a viscosity of 2.42, had a blood pressure of 242 mm. In three of the twenty-four cases the viscosity was above the average normal standard adopted by Hirsch and Beck. It is distinctly stated that in neither of these three cases was there any marked hydremia.

Herein lies the explanation of the comparatively low viscosity found so constantly in Bright's disease, for we usually have, as was found in twenty-one out of twenty-four of these cases, a more or less marked anemia. This anemia means, of course, a reduction in the number of

erythrocytes on which, as pointed out by Heubner,[7] the viscosity very largely depends.

Just what would be found in the pre-anemic stage of Bright's disease, if these cases could be observed at this time, is a question which is not yet settled, and in its very nature is almost impossible of solution. Few diseases are so insidious in their development, so completely masked in their early stages as this, and, as a rule, when first seen the blood has undergone serious changes and has become more or less hydremic. Ewart contends that the viscosity is high at this time and is one of the factors in the production of the cardiac hypertrophy. Hirsch and Beck, supported by Bence, controvert this view, and claim for reasons that do not appear to me entirely conclusive, that increased viscosity is not a factor in producing the cardiac hypertrophy. The difficulty lies in observing the cases early enough to determine the conditions during the early stages of the hypertrophy, which is usually well marked when the case is recognized.

As shown by Determann, Hirsch and Beck and Bence, those who eat considerable quantities of meat have a higher viscosity, and in at least one of the series of cases above quoted in which there was no anemia, the viscosity was extremely high. When the effect of a free meat diet is taken in connection with alcohol, together with the toxic conditions which we now believe to be antecedent to the fully developed picture of Bright's disease, high viscosity appears to be probable in the preliminary stages. Just in so far as it does exist must it be reckoned with as a factor, although very possibly a subordinate one, in increasing the work of the heart, the physiologic result of which is hypertrophy.

In the cases with arterial disease the high resistance in the peripheral circulation is much more important in increasing the work of the heart and with a very low viscosity may give us a high blood pressure, as in the case above quoted. It seems to me, therefore, that while the effect of the toxins on the heart muscle may reasonably be regarded as an excitant of over-action on the part of the heart and consequently of hypertrophy, as originally set forth by Bright, that it is strictly in accordance with clinical and scientific data to regard an increased peripheral resistance both from a diminished caliber of the blood vessels and an increased viscosity as important factors in the production of the cardiac hypertrophy of Bright's disease. Just how large a rôle increased viscosity plays and in what group of cases it is most conspicuous it is impossible at present to say.

Not very much can yet be said concerning the therapeutics of high viscosity. The iodids undoubtedly modify it in some way, and are therefore indicated in suitable cases in small doses. In cases of polycythemia the treatment is that of the blood condition. In several cases under my observation with viscosity sufficiently high to form important factors in circulatory disturbances this condition was present in a very marked degree. In one case with a red cell count of 7,250,000, the viscosity was very nearly seven. There was associated with the polycythmia, hyperchlorhydria and neurasthenic symptoms. During a month's treatment in the hospital, along with the general improvement, the red cell count gradually dropped to about 5,000,000 and the viscosity to 5.5.

The obscure modifications of the plasma which undoubtedly influence viscosity can only be treated in a general way by improved nutrition, elimination, etc., as their precise character is entirely unknown. The withdrawal of alcohol and a reduction or withdrawal of meat in the diet is clearly indicated in these cases. The importance of a free supply of oxygen is also clearly indicated by the experimental work with asphyxia and the inhalation of oxygen. Outdoor life, moderate exercise, the best of hygiene and everything that tends to uplift the physical condition of the patient should and usually will tend to lower excessively high viscosity and thus free the peripheral circulation.

A low viscosity usually means simple hydremia the therapeutic indications of which are plain enough, though not always effective.[8]

CONCLUSIONS.

1. The viscosity of the blood is an important physical property dependent on both the corpuscles and the plasma which furnishes a considerable part of the peripheral resistance to the circulation of the blood.

2. It undergoes considerable fluctuations as a result of physiologic changes connected with food, drink, exercise, etc.

3. Under pathologic conditions, the changes are much greater and the viscosity may be so much increased, as, for instance, when the blood is charged with CO_2 that the heart will be embarrassed in overcoming it.

4. The viscosity of the blood is actually low in the large majority of cases of chronic Bright's disease owing to existing hydremia, but there is probably an earlier stage with high viscosity.

5. It seems probable that an increased peripheral resistance in the circulation of the blood due, in part, to increased viscosity, is at least one of the factors in the production of the cardiac hypertrophy of Bright's disease.

6. Venesection greatly lowers the viscosity of the blood by withdrawing its solids and attracting the fluids from the surrounding tissues.

7. Alcohol introduced into the circulation greatly increases viscosity, and in this way interferes with the peripheral circulation and burdens the heart.

8. The approximate determination of the viscosity of the blood as a routine clinical procedure is desirable in nutritional and toxic disorders, and should be made by a method rapid and simple enough to be practicable for routine use.

9. Individual diseases do not change viscosity in any characteristic way except as they incidentally modify the blood.

10. The determination of viscosity should be made promptly before the corpuscles have time to settle, for obvious reasons. The use of hirudin, if it leads to considerable delay, is therefore objectionable unless the homogeneous mixture of plasma and corpuscles is again reproduced.

11. The viscosity of the blood is not altogether dependent on its specific gravity, for in fevers the former may be high and the latter very low.

ABSTRACT OF DISCUSSION.

DR. HENRY B. HEMENWAY, Evanston, Ill.: I believe the subject of Dr. McCaskey's paper to be one of the most important ever brought before the attention of the general practitioner. Dr. McCaskey, however, has kept the heart especially

7. Arch. f. exper. Path. u. Pharmakol., Leipz., liv, 149; lvi, 280.

8. Lommel, F.: Deutsches Arch. f. klin. Med., Leipz., 1904.

in view, whereas I have been looking especially at the general circulation. For example, pure water would flow for a long time and uninterrupted through a pipe of a certain size. If the water is impure, however—as, for example, sewage from the kitchen sink—the greater viscosity would clog the pipe. So, with increased viscosity of the blood there would be an obstruction to the circulation through the capillaries, and this tends to produce a closure in the capillaries. An interesting point is that, before the absolute closure, the arterial pressure is much greater than the venous pressure and there is the tendency for the serum to get into the tissues. This exuded fluid then gains an entrance back into the circulation by absorption through the small veins and lymphatics. This results in a gradual straining out of the organized elements of the blood and, in such cases, one would find an increasing anemia.

This increased viscosity of the blood, as well as sometimes an increased coagulability of the blood, is found in certain forms of Bright's disease and other conditions. Coagulability of the blood does not always accompany an increased viscosity of the blood. Yet there are times when the coagulability is accompanied by increased viscosity of the blood.

If the coagulability and the viscosity of the blood are increased at the same time, there is an inclination toward the production of a thrombosis, a thrombosis occurring in any portion of the body. So in this there is one of the most common conditions concerned in the production of thrombotic apoplexy. In the production of an attack of this form of apoplexy there is an increased viscosity, a slowing of blood current, with an increased coagulability of the blood which tends to produce thrombosis.

DR. NATHAN ROSEWATER, Cleveland: The viscosity of the blood has interested me for a long time. Viscosity of the blood is reduced by the iodids; this does not require very large doses, only from five to ten grains. The method Dr. McCaskey used I believe to be a good one; but would it not be practical to drop the blood directly from the pipette through alcohol or ether, noting the time, dropping it through a long column of the fluid?

DR. J. F. HULTGEN, Chicago: With regard to the relation between alcohol and the viscosity of the blood, Dr. McCaskey has omitted to give the dose administered, the kind of alcoholic beverage used, and as to whether there were any other morbid conditions coexisting at the time of alcohol ingestion. Moreover, he has not suggested how it does produce this increase in viscosity.

DR. LOUIS FAUGERES BISHOP, New York: The difficulty with which the blood circulates has a distinct relation to the increased red-cell count. In my experience there is a large number of cases of circulatory troubles in which high tension exists, cases occurring in overnourished people suffering from high arterial tension; the red-blood count has been considerably above 5,000,000. I have learned to expect the red-cell count to be above the normal in a certain type of cases.

Again I could expect the condition to improve with a reduction in the red-cell count by suitable hygiene. This shows to me that the red-cell count has an important bearing in certain conditions.

DR. G. W. MCCASKEY, Fort Wayne, Ind.: In regard to the point mentioned by Dr. Bishop, an estimation of the red-cell count is certainly important. I am glad to hear Dr. Bishop say that in some cases of polycythemia the red-cell count dropped with improved hygienic conditions, for this is in accord with my experience. I do not know how alcohol acts on the viscosity of the blood. Twenty minutes after its introduction into the duodenum of animals there occurs an increased viscosity. Just what the change is I do not know. The experimental dose is from 5 to 20 c.c. I believe that the iodid of potassium lowers the viscosity of the blood. In studies on the viscosity of the blood I believe that we have found a partial explanation of how the iodids act in chronic cardiovascular diseases. As the viscosity is lowered, peripheral resistance is diminished.

SOME PHYSIOLOGIC ASPECTS OF BLOOD-VESSEL SURGERY.*

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INTRODUCTION.

The subject of blood-vessel surgery is not new. For many years surgeons have occasionally been called on not only to repair traumatic or pathologic injuries in the walls of arteries and veins, but also to unite the ends of cut vessels. An excellent review of the literature has been given by Murphy.[1] Among recent investigators and successful operators in this field, two of the leaders whose methods and results are known to all are present to-day. I refer to Drs. J. B. Murphy and Rudolph Matas. Their success has been due primarily to their refined technic, which essentially comprises the admixture of judgment and skill together with the employment of instruments and materials in accordance with the structures operated on. Dr. Tuholske tells me of successful results he has obtained by suturing blood vessels. No doubt there are other surgeons present who could likewise demonstrate successful results. Since success in this field has been achieved by a number of gentlemen present, it is with some trepidation that I present my views.

METHOD.

The technic employed in my experiments is a modification of that developed by Dr. Carrel and myself. Essentially it is the same as that employed by previous successful investigators in that it consists of gentle handling of the vessels, with protection from drying, smooth approximation of the intimal surfaces and fixation by means of needles and thread in proportion to the size of the vessels.

After exposing the vessel, temporary occlusion is obtained by means of ordinary seraffine or bulldog forceps. By shielding the blades with muslin and forcibly compressing the springs to weaken them, the forceps may readily be adapted for use with liability of the vessel to injury reduced to a minimum. The edges to be sutured are cut smoothly with small sharp scissors. Excess of blood is removed by stripping the vessel between the fingers from the point of occlusion to the cut end and the blood absorbed with a soft dry sponge. The loose connective-tissue coat is then slightly stretched by grasping between the thumb and finger and snipped off even with the ends of the vessel. To protect the vessel from drying it is coated inside and out with paraffin oil. Two or more ligatures are then passed through corresponding points on the circumferential margins of the two ends of the vessel and tied, thus approximating the cut surfaces. The walls are then further united by a continuous suture entirely encircling the point of union, each stitch passing through the intima on either side a little way from the cut edge. The chief difference in the methods for arteries and veins is that in arteries the stitches are placed somewhat closer together than in veins. To facilitate handling and to aid in restraining coagulation, the threads are kept in paraffin oil. The

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Murphy, J. B.: Resection of Arteries and Veins Injured in Continuity End-to-End Suture, Med. Rec., Jan. 16, 1897.

needles employed on small and medium-sized vessels are No. 16 cambrics. The thread is one of the six component strands of Chinese twist silk. On restoring the circulation hemorrhage will occur from the needle-holes, but if the point of anastomosis be compressed for a minute or two, as a rule all hemorrhage ceases, due to the deposit of fibrin in the holes. This technic can no doubt be improved, but for our present purposes it has been entirely adequate.[2]

Transverse or lateral injuries in the walls of both arteries and veins are readily repaired by picking the vessel up by placing the finger beneath the point of injury and stitching the edges of the wound directly, slight traction by the finger being adequate to compress the walls and shut off the circulation.

RESULTS.

Immediately after the operation, in all cases very probably, more or less fibrin is deposited inside the vessel at the point of anastomosis. This may be due: (a)

Fig. 1.—Ovary transplanted in fowl after about seven months. Eggs from such hens have been hatched.

to incomplete approximation of the intimas; (b) to holes in the intima due to the needle punctures; and (c) to the presence of the suture, which is foreign material, inside the vessel. Conditions are favorable for clotting at the point, as it is probable that blood plates tend to accumulate on the roughened surfaces (Kemp); and as they are known to furnish a factor (thrombogen) necessary in the formation of fibrin ferment (thrombin); and since the injured vessel walls provide another factor (thrombokinase); and since calcium, the other factor necessary for the formation of the ferment, is present in the plasma, conditions are favorable for coagulation. The extent of the resulting obstruction to the circulation may vary from practically nothing to complete stoppage, depending on the degree of perfection of the operation.

2. THE JOURNAL A. M. A., March 28, 1908, L, 1035.

Unless there be some gross fault, the usual result is that no appreciable interference to the circulation results, and the fibrin deposited disappears, presumably by becoming organized and absorbed. The percentage of successful results depends somewhat on the size of the vessels, very small vessels being less successfully united. Vessels having a diameter of 2 mm. or less are not so easily handled successfully as larger ones.

RESTORATION OF CONTINUITY OF DIVIDED BLOOD VESSELS.

If vessels be merely divided without great loss of substance the ends may be reunited directly, owing to their

Fig. 2.—A, dog's head about one and one-half hours after being transplanted on to B. Reflex and voluntary movements good.

elasticity. Excessive traction on the anastomosis is to be avoided, as it renders success less certain. Traction may be lessened by suitable ligatures connecting the tissues surrounding the vessels. Where the gap is too large a variety of measures are at the disposal of the operator. Perhaps the most feasible is to remove a suitable segment of some non-essential vein and interpose it between

Fig. 3.—Kidney of male cat transplanted into a female cat for about one year.

the ends of the divided vessel. Or a segment of blood vessel from another animal of the same or of a different species may be employed. Or a segment of vessel previously removed and kept at a low temperature[3] or in a preserving solution—formaldehyd, for instance[4]—may

3. Carrel, Alexis: Heterotransplantation of Blood Vessels Preserved in Cold Storage, Jour. Exper. Med., March 14, 1907, ix, 226-228.

4. Guthrie: Transplantation of Formaldehyd-fixed Blood Vessels, Science, N. S., 1908, xxvii.

be used with good result. Functionally, all of these methods have given excellent results. Even though enormous structural alterations may occur in such segments, no evidence of loss of adequate physical strength has been observed. As a rule, fibrous thickening of the wall occurs.

A number of factors must be taken into account in interpreting the structural changes. As these have been dealt with in a previous paper,[2] I shall not take them up in detail here.

TRANSPLANTATIONS OF ORGANS.

The old and well-known method of grafting tissues answers in the higher animals only for small masses of tissues. In the case of birds, even ovaries may thus be successfully transplanted[5] (Fig. 1), but in the case of large organs, or masses of tissues such as a limb, the method is inadequate.

Fig. 4.—Enlargement after six days of normal thyroid gland (dog) following reversal of the circulation in right inferior thyroid vein. A, normal lobe; B, lobe on side operated on; C, anastomosis between the central end of the right common carotid artery and the peripheral end of the right inferior thyroid vein.

Since anastomosis of blood vessels has proved so simple a matter, I have employed it in studying the latter class of transplantations. Briefly, the results so far have demonstrated the feasibility of transplanting limbs. That the restored circulation is adequate is demonstrated by the absence of gangrene or other symptoms attributable to this factor both in the case of a hind leg replanted on a dog by Carrel and myself, and also by both fore and hind legs which I have transplanted from dogs to dogs of other breeds. In addition, I have transplanted dogs' heads with preservation of cerebral and bulbar function (Fig. 2). Even in a case in which the circulation was interrupted for twenty-nine minutes, good return of function was observed in the transplanted head. This demonstrated conclusively the adequacy of the restored circulation.

Since I have found no evidence of serious derangement of metabolism in dogs' thighs up to eleven days after transplantation, nor in a dog's fore leg six days after transplantation, and since there are no physiologic or other reasons known why such tissues as those found in the limb may not live and again function under such conditions, it seems justifiable to conclude that it is possible to transplant such a member with permanent success.

In the case of tissues less resistant to the interference to the circulation necessary during the period of the operation, our present knowledge is more limited owing to lack of exact data. Also in operations of such length that coagulation of the blood in the vessels of the part being transplanted is liable to occur, in which we have been in the habit of washing the blood out with some one of the many inappropriately termed "physiologic saline solutions," the extent of the injurious action of the solution is unknown. From the results on the kidneys, although my animals lived for several weeks, I came to the conclusion that permanent success was improbable owing to the latter factor. Even in the case of a kidney transplanted into a cat for more than a year, removal of the sound kidney was promptly followed by death of the animal. Examination showed the transplanted kidney to be structurally far from normal (Fig. 3). This may have been due, however, at least in part,

Fig. 5.—Decrease in size, after 11 months, of lobe of pathologic thyroid gland (goiter, dog) following reversal of the circulation in the right inferior thyroid vein. A, lobe on unoperated side; B, lobe on operated side; C, anastomosis between the central end of the right common carotid artery and the peripheral end of the right inferior thyroid vein.

5. Guthrie, C. C.: Further Results of Transplantation of Ovaries in Chickens, Jour. Exper. Zool., 1908.

to other causes. A partial washing out of the blood will not eliminate this factor of toxicity of the solution, for when the solution arrives at the capillaries through which it must pass in order to displace the blood from the veins, it will be practically unmixed with blood, for the well-known reason that after the circulation is cut off the arteries tend to empty themselves. As in all probability it is in the capillaries that the greatest harm is done, the notion of judging partial perfusion by the degree of dilution of the blood as it escapes from the veins is theoretically incorrect.

It is now known that it is possible to transplant the legs or heads of dogs so quickly that perfusion is unnecessary, coagulation not occurring under forty minutes to one hour or more, and the period of occlusion requiring not over thirty minutes.

No doubt the time of occlusion in transplanting such organs as the kidneys may also be reduced so that danger of clotting will be eliminated. For the present, however, I am investigating the influence of various solutions used for perfusion, as well as the effect of clamping the arteries on the kidneys. To do this I clamp the aorta immediately above and below the origin of the renal arteries. When perfusion is desired, this is accomplished by means of a needle inserted into the segment of aorta between the clamps. By clamping in addition the renal artery on one side, the perfusion may be confined to one kidney while the other is simply cut off from the circulation. Thus far I have used cats, and the results on these animals are striking. When perfused with even relatively small quantities (5 to 15 c.c. per kidney) of 0.9 NaCl or Locke's or other so-called "physiologic salt solutions" for periods of only a few minutes, the total period of occlusion not exceeding ten to fifteen minutes, often death occurs within three to ten days with symptoms of a uremic toxemia and derangement of renal internal secretion, as evidenced by the rapid emaciation and enormous amounts of urea excreted.[6]

condition, that is, hyperemia, that I desire to present very briefly a few experimental results.

The magnitude of the changes observed in normal tissues after production of a localized hyperemia is in direct proportion to the degree of hyperemia. By reversing the circulation in the peripheral end of one of the external jugular veins by anastomosing it with the

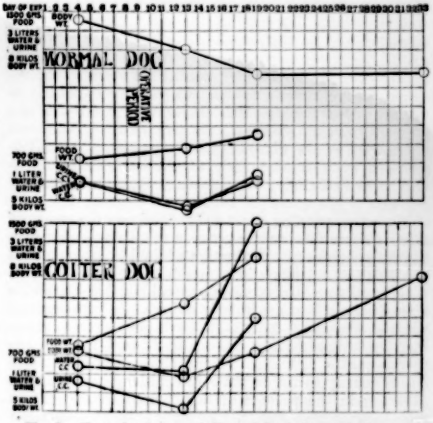

Fig. 6.—Chart showing metabolism of dog before and after operation on goiter.

central end of one of the common carotid arteries, no doubt a degree of passive hyperemia of the head is produced; yet no evidences of this are observed in the behavior of the animal, and no marked structural

TABLE OF PERFUSION OF KIDNEYS.

No.	Date.	Aorta Occluded.	Perfusion Made.	Amount Perfused, c.c.	Aorta Released.	Period of Occlusion.	Period of Perfusion.	Remarks.	Perfused with	Death after
16	4, 24, '08	3:54	3:56	31	4:07	13' 0"	11' 0"	Both kidneys perfused.	Ringer's sol	3 days.
*17	4, 25, '08	1:54	1:56	25	2:07	13' 0"	11' 0"	Both kidneys perfused; nerves cut	Ringer's sol.	9 days.
18	4, 29, '08	4:15' 30"	4:17' 30"	21	4:26' 30"	9' 0"	7' 0"	Both kidneys perfused.	Ringer's sol.	1 day.†
19	5, 7, '08	3:32	3:35	40	3:45	13' 0"	10' 0"	Right kidney *only* perfused.	Ringer's sol.	3 days.
20	5, 7, '08	4:30	4:30' 30"	18	4:48	14' 0"	8' 30"	Both kidneys perfused.	Ringer's sol.	2 days.
21	5, 23, '08	2:35	2:38	11	2:50	15' 0"	12' 0"	Both kidneys perfused	Locke's sol. .	3 days.

* Analysis of urine: Amount, 30 c.c.; color, pale yellow, cloudy; sp. gr., 1.048; sugar, absent; proteids, trace; urea, 11.28 %; chlorids, large quantity; phosphates, large quantity; sulphates, large quantity; microscopic examination shows several casts; many spermatozoa.

† Clot in aorta.

RESULTS ON THE CIRCULATION.

It has been known for a very long time that the activities of the tissues of the body may be profoundly influenced by alterations of the circulation. This consists of decreasing or increasing the blood to a part. Decreasing the circulation brings about the condition termed "anemia;" increasing the circulation produces "hyperemia." Tying an artery will produce anemia; increasing the arterial flow to a part as by causing a local dilatation produces active hyperemia, while by hindering the venous return passive hyperemia will be produced. It is especially in connection with the latter

changes have been observed other than a thickening of the wall of the vein. The lack of more positive results is probably due to the free anastomosis between veins.

If, however, the circulation be similarly altered in a vein having a more "terminal" character, as in the inferior thyroid vein, the results are striking. This operation produces what may be termed a double hyperemia, as by eliminating the vein as a channel for return of venous blood, the ratio of venous to arterial cross sectional area of the gland is decreased; therefore, passive hyperemia results. But since arterial blood is forced into the gland through the vein, the proportion of arterial area to venous areas is further increased, and active hyperemia is also produced. Such an operation produces a maximum hyperemia, and the results on both normal

6. Bradford: Proc. Royal Soc., London, 1892; Tigerstedt and Bergmann; Skandin. Arch. f. Physiol., 1898, viii, 223; Suner: Zentralbl. f. d. ges. Physiol. u. Path. d. Stoffwechs., 1907, 2, 3.

and pathologic glands are very marked. In both cases a rapid transudation is seen to take place from the blood vessels, the glands becoming markedly edematous even in a few minutes. The swelling increases for about forty-eight hours, by which time, in pathologic glands, it may reach enormous proportions (Fig. 4). At the end of this period it begins to subside, so that at the end of about twelve days the gland is about the same size as at the time of operation. In the case of enlarged pathologic glands, from this time onward there is a continuation of decrease in size so that at the end of three weeks or a month the gland may not greatly exceed a normal gland in size (Fig. 5). The chief clinical difference in the reaction thus set up in a normal and pathologic gland is of degree. Also, it seems that the normal gland does not decrease to below its size at the time of operation.

Ligation of the thyroid veins in pathologic glands is followed by a similar train of clinical phenomena to that described above, the difference again being one of degree.

The accompanying chart (Fig. 6) shows the result of a few observations on the gross metabolic processes in a dog before and after production of double hyperemia in one side of a bilaterally symmetrical goiter. Among these results are an increasing appetite and thirst and a corresponding increase in body weight. In behavior and physical condition the results have been equally striking, the animal having become lively and lost the appearance of a sick dog. These changes are no doubt due primarily to the increase in capillary pressure, this resulting in the passage of liquid from the blood into the extravascular spaces. Beyond this we enter the realm of speculation, and, since Dr. Tuholske will have something to say on this point to-morrow, I refrain from further discussion.

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RESULTS OF THE TRANSPLANTATION OF BLOOD VESSELS, ORGANS AND LIMBS.*

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INTRODUCTION.

The idea of replacing diseased organs by sound ones, of putting back an amputated limb or even of grafting a new limb on a patient having undergone an amputation, is doubtless very old. The performance of such operations, however, was completely prevented by the lack of a method for uniting vessels, thus re-establishing a normal circulation through the transplanted structures. The feasibility of these grafts depended on the development of the technic.

The history of vascular surgery is too well known to need repetition. It recently reached the active stage of its development with the experiments of Murphy in Chicago and of Payr in Gratz. Murphy united the arteries by invagination and suture, while Payr used a magnesium tube. The remarkable experiments performed in 1903 by Hoepfner with the method of Payr gave an illustration of what could be obtained in vascular surgery by a proper method.

Finally a very simple method of circular suture was developed, which has given excellent results and has been extensively used in experimental work. It appears that vessels sutured under certain conditions heal very easily, and that no thrombosis occurs as long as the operation is aseptic and the union of the vascular ends accurate. The results are durable, the circulation being maintained through the anastomoses for more than a year in several cases, and in one instance for nearly three years. The examination of the anatomic results shows that the scar of the severed vessels is, in many cases, so small that, after a few months, it is hardly discernible. There is no modification of the caliber of the vessel at the level of the anastomoses. Slight faults of technic may lead to obliterative thrombosis, but when the vessels are of sufficient caliber, accidents seldom occur. Therefore, this method of anastomoses can be employed for more complicated operations, the transplantation of vessels, organs, anatomic regions, and limbs.

I. TRANSPLANTATION OF VESSELS.

A segment of an artery or vein can be transplanted between the cut ends of an artery or a vein, between two regions of the circulatory apparatus, and even between a serous cavity and a vessel. For instance, in some cases of ascites it would be useful to establish a permanent drainage of the peritoneal cavity by suturing a piece of a valvular vein between the peritoneum and a large vein.

Ruotte cut the saphenous vein and sutured its peripheral end to the peritoneum in a case of chronic ascites. The ascites disappeared.

The graft of a segment of vein between branches of the portal vein and the vena cava would act as a substitute for Talma's operation. However, the main application of the vascular transplantations will be, probably, the re-establishment of the circulation through an artery of which a segment has been accidentally or surgically destroyed. The ideal method would be to transplant between the cut ends of the artery a fresh segment of human artery. But this is not easily practical. Therefore, I attempted to determine whether or not a segment of vein, or a segment of artery preserved in cold storage or an artery from an animal of another species can be used safely.

The Transplantation of a Segment of Artery.—This was performed for the first time in 1896 by Jaboulay. He thought that this method could be applied to the treatment of aneurisms, but the anastomoses were imperfect and in every case thrombosis occurred. Nine years later Hoepfner performed successfully the transplantation of segments of arteries by using the method of Payr, and in a remarkable series of experiments demonstrated the possibility of transplanting arteries without the occurrence of thrombosis. In 1905, in Chicago, and afterward in New York, I applied to the transplantation of arteries the circular suture and found that this method gives excellent results, even when the vessels are of different caliber. The transplantation of a segment of artery on an artery of another animal of the same species is ordinarily successful when the vessels are of sufficient size and the anastomoses are performed correctly. After a few months the transplanted segment has absolutely the same appearance as the normal vessel. The histologic examination of transplanted

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

*Because of lack of space, the article is here abbreviated by the omission of all of the pictures and part of the text. The complete article appears in the Transactions of the Section and in the author's reprints.

arteries shows that the wall does not undergo marked modification. Wood has studied the vessels during the seventy days following the operation. The elastic and muscular fibers of the media remain normal. There is a little increase of the interstitial connective tissue. The intima is sometimes a little thickened.

The remote results are excellent. A dog, into whose aorta a segment of aorta from another dog had been transplanted, was living and in good health nine months after the operation, and the femoral pulse was normal. These results show that segments of fresh arteries transplanted from an animal on another animal of the same species remain practically normal from a physiologic and histologic standpoint.

Transplantation of Veins.—Unfortunately this operation would not be very practical on man, for it is difficult to get fresh pieces of human arteries. If the veins could act as a substitute for arteries, the problem of the treatment of large wounds or of resection of arteries would be solved, for it is always possible to get venous material from the patient himself. The first attempt of transplantation of a segment of jugular vein into the carotid artery of a dog was made by Gluck in 1898, but thrombosis occurred. In 1903 Exner performed six experiments of the same character, but in all cases thrombosis took place. He thought the failure was due to the poor nourishment of the transplanted vessels, resulting from disturbance of the vasa vasorum. In the same year Hoepfner, using the magnesium tubes of Payr, made ten transplantations of veins on arteries, with constant negative results.

In 1905 I succeeded with Guthrie in transplanting segments of jugular veins into the carotid artery and found that the vein quickly undergoes structural changes, consisting chiefly of the thickening of its wall. Stich and Makkas observed the same results. Watts succeeded also in transplanting segments of jugular on the carotid. I obtained excellent results in the transplantation of the vena cava into the aorta, operations which had been attempted by Goyanes in Spain. From all these experiments it is possible to know the anatomic evolution of a piece of vein transplanted on an artery.

The transplantation is often successful, but much less constantly successful than the transplantation of arteries on arteries. Thrombosis occurs more frequently, due, perhaps, to the difference of caliber of the vessels generally used, jugular vein and carotid artery. The approximation of the intimas is difficult, fibrin deposits itself on the foldings of the vein, and can produce, under certain conditions, obliterative thrombosis. When the artery and the vein are of the same caliber, the results are much better. I performed twice the transplantation of the vena cava into the aorta and in both cases the healing was perfect. It is probable that the results of the venous transplantations could be as good as those of the arterial transplantation if the caliber of the vessels were similar.

A segment of vein transplanted into an artery undergoes immediately very marked change. Its lumen is dilated, but its wall becomes thicker and stronger. No aneurism has ever been observed. It seems, on the contrary, that the vein adapts itself to its arterial functions, and reacts against the increased blood pressure by thickening its wall. The anatomic changes begin very soon after the operation. Fourteen days after the operation Guthrie and myself found the wall of the transplanted segment very much thickened. The thickening was produced mainly by an increase of the connective tissue of the adventitia and the interstitial tissue of the muscular coat. This very considerable thickening does not always happen.

The remote results are excellent. Eight months after the operation, I extirpated the carotid artery of a dog into which a segment of jugular had been transplanted. The lumen of the vein was dilated, but its wall was very thick and strong. There was no stenosis or dilatation of the anastomoses. The intima of the vein had in the neighborhood of the anastomoses a scar-like appearance.

These experiments show that a vein can adapt itself to the arterial functions. But it seems that the transplantation of veins on arteries is less safe than the transplantation of arteries on arteries.

Transplantation of Preserved Arteries.—Therefore, it would be very important to find a method of preserving tissues outside of the body for a few days or a few weeks. I attempted to use the influence of the cold for preserving the vessels. Therefore, segments of arteries were aseptically extirpated and preserved in cold storage slightly above the freezing point. Concerning the nature of the preservative fluid and the optimum temperature, no definite technic has yet been adopted.

The actual method consists of extirpating the vessels under rigid asepsis, of washing them in Locke's solution and of immediately placing them in a glass tube, which contains, on a small piece of absorbent cotton, a few drops of Locke's solution. The tube is sealed and put into an ice box, the temperature of which is constantly between 0 and 1 C. Some vessels have been preserved also in tubes filled with Locke's solution. The vessels undergo very little gross anatomic changes during the first weeks. Afterward they become less elastic. The periadventitial connective tissue acquires a soapy consistency. However, from a histologic standpoint, the muscle fibers remain ordinarily normal, even after one month.

Arterial segments were transplanted after having been kept in the refrigerator from one to thirty-five days. The occurrence of thrombosis was observed mainly at the beginning of the use of the method. Clinical and histological examinations of the results were made from five days to one year and a half after the operation. The gross anatomic changes of the vessels are ordinarily very slight. But the wall presents generally marked histologic lesions. These lesions seem to depend on the nature of the preservative used and the length of time spent in the refrigerator. A fragment of carotid artery transplanted into a dog after twenty-four hours of cold storage in salt solution, showed a complete destruction of the muscle elements five days after the operation. In another case very little change of the muscle fibers was observed after eighteen days.

The following observation shows that a segment of artery preserved in cold storage for ten days acts as a living vessel probably for an indefinite period of time. On Feb. 26, 1907, a segment of carotid was extirpated from the body of a dog thirty-five minutes after death and preserved in a tube of Locke's solution in cold storage. On March 6 this segment was transplanted into the left carotid artery of a dog. On May 3, 1907, we examined, with Dr. Crile, the neck of this dog, and found that the transplanted segment had the same appearance as the other parts of the artery. On May 15, 1908, the neck of the dog was opened again. The left

carotid artery appeared to be entirely normal. By a careful dissection one of the anastomoses was exposed. There was no induration of the wall at its level. The only evidence of the suture was a very narrow dark line on the adventitia. The transplanted segment was altogether similar to the other parts of the carotid.

The carotid artery and the transplanted segment were extirpated. When the carotid was empty and retracted itself, the transplanted segment became very apparent, because it did not contract itself. It had evidently lost all its elasticity. The intima was smooth and glistening. The location of the anastomoses was marked merely by a slight difference in color. There was no evidence of scar, from a gross anatomic standpoint. The intima was thickened, and, in a point where the media was a little thinner, presented a patch of greater thickness. The cellular tissue of the adventitia was also increased. The media was very much modified. Its internal portion had undergone hyaline degeneration. The external part was composed of fibers, of which it was difficult to say if they were connective or muscular. The elastic framework had entirely disappeared. It must be noticed that in spite of the lack of elastic tissue, the vessel has not undergone any dilatation and was apparently normal. A few other animals into which segments of vessels preserved in cold storage were grafted demonstrate that the remote results of this operation may be excellent.

These observations show that a vessel transplanted after having been kept in cold storage for a few days or weeks can functionate normally for a long time. The anatomic results are excellent, for the vessel, in spite of deep histologic changes, is not a dead but a living structure.

Other methods of preservation of vessels have been tried, but with little success. I transplanted segments of arteries which had been frozen for several days. The immediate results were sometimes apparently excellent. But, ultimately, in all cases except one, obliteration, atrophy and absorption of the vessel occurred after a few days, weeks or months.

The transplantation of devitalized arteries has been attempted by Levin and Larkin in New York, but in almost every case thrombosis occurred. However, after the transplantation of a segment of aorta fixed in formalin into the aorta of a dog, excellent circulation was observed. Histologic examination ten days after the transplantation showed that the wall was composed of amorphous tissue in which the elastic framework was seen to be very well preserved. In another case of Levin and Larkin, twenty days after the operation, the wall of the vessel was completely amorphous and surrounded by dense connective tissue. A similar experiment has been performed in St. Louis by Guthrie, who obtained an excellent functional result, but no histologic examination of the vessel has yet been published.

I found also that it is possible to use peritoneum as a substitute for the arterial wall.

Transplantation of Arteries Between Animals of Different Species.—It is generally believed that a piece of tissue transplanted from one animal into another of different species undergoes cytolysis and disappears. It is not always true. There are several varieties of heteroplastic transplantations according to the zoologic distance which separates the host and the owner of the transplanted tissue. If a piece of tissue is transplanted from an animal to another and very different animal—from the mouse to the lizard, for instance—cytolysis occurs. But if the owner of the tissue and the host belong to more closely related zoologic sections, as, for instance, the guinea-pig and the rabbit, the graft does not undergo any cytolysis, but gradually disappears by atrophy. A few vessels are formed, but the vascularization is much less developed than it happens when the animals are of a same species. Nevertheless, as it has been shown by Cristiani, grafts between animals of different species, as guinea-pig and rabbit, can take. But these grafts are less vascularized than normally. These facts led me to attempt heteroplastic transplantation of blood vessels, with the view that between animals as closely related as cat and dog, or man and monkey, the vessel would not undergo any cytolysis, but would stand the serum of the other animal, and, perhaps, adapt itself to its new conditions of life.

Heteroplastic transplantations of vessels have been performed by Hoepfner in Berlin several years before my experiments. But the results were absolutely negative. Nevertheless, in December, 1906, I presented before the American Physiological Society a cat into which a segment of carotid artery of a dog had been grafted. The femoral pulse was normal. An exploratory laparotomy was performed afterward and the transplanted segment found almost normal. To-day, one year and seven months after the operation, the femoral pulse is still normal. At the same time, Stich and Makkas transplanted successfully segments of arteries from rabbit and cat to dog, and from man to dog. Afterward Guthrie successfully grafted onto a dog the arteries of a rabbit and cat.

The anatomic evolution of the vessels will be divided artificially into three periods: before the twentieth day, from the twentieth day to the seventieth day, and after the seventieth day. During the first two weeks the transplanted segment remained normal from a gross anatomic standpoint. The muscular fibers are normal. The interstitial connective tissue is slightly increased. Generally, the intima is free from a thrombus. In a case of transplantation of human vessel on dog, I found the intima completely covered by a thin layer of fibrin. Stich has observed the same disposition. This layer does not interfere with the circulation, but isolates the transplanted vessel from the blood. Wood has found that twenty days after the operation the lesions of the elastic fibers are already marked, while the muscle fibers are still normal.

The lesions are more marked on rabbits' than on cats' vessels, when transplanted on dogs. From the twentieth to the seventieth days, the vessel undergoes a more or less marked dilatation of its lumen. The lesions are characterized by a progressive and complete disappearance of the elastic framework, by a diminution in the number of the muscle fibers, an increase of the interstitial connective tissue, and a thickening of the intima. Nevertheless, the endothelium may persist. Fifty-two days after the operation Stich saw the endothelium covering the anastomosis.

In another case, where the wall was covered partially by a parietal thrombus, the intima was lined by endothelial cells. Wood found that seventy days after the operation all the elastic tissue had disappeared. Afterward the lesions seem to go on slowly. After six months I found the carotid artery of a dog, transplanted on a cat, very much dilated. The intima was smooth,

and there was no evidence of the anastomoses. They could be approximately located only by the beginning of the dilatation. No elastic fibers could be detected. The media was deeply modified. Its internal part had in part undergone hyaline degeneration. The external part was composed of connective tissue and a few fibers, presenting the histologic reaction of muscle fibers. The adventitia was thickened.

This shows that the vessel does not undergo any cytolysis. Slowly the elastic fibers disappear, the lumen becomes dilated, the connective tissue increases, and the muscle fibers, which at first remain normal, diminish in number, and finally are almost completely resorbed. The vessel is progressively transformed into a tube formed almost exclusively of connective tissue. But this tube is made of living tissue and can act as an artery for one year and a half, at least.

II. THE TRANSPLANTATION OF ORGANS.

The transplantation with the re-establishment of the circulation by vascular anastomoses permits the graft of a whole organ, like the kidney or the spleen. As regards glands like the thyroid, parathyroid and ovaries, the action of which on the organism is efficient even when the volume of glandular tissue is small, the graft of pieces of tissues by simple implantation is sufficient.

In 1905 I succeeded with Guthrie in extirpating and replanting the thyroid gland with reversal of the circulation. Eleven days after the operation the wound was opened and the circulation of the gland was found going on. The animal is still alive and the anatomic examination of the gland will be made later.

The brilliant results obtained by Halsted in the transplantation of the parathyroid, and by Bush and Schmieden in the transplantation of the suprarenals, show that the graft of these small bodies by simple implantation is efficient. Nevertheless, it would be possible also to graft the parathyroids with immediate re-establishment of the circulation, by using the method of transplantation in mass.

I attempted to develop a method of transplantation in mass of the suprarenal glands on cats. A first cat was killed and both suprarenals extirpated with the corresponding segments of the aorta and vena cava. On a second cat the aorta and vena cava were transversely severed a few centimeters below the kidneys, the anatomic specimen was placed into the abdominal cavity, and the ends of the aortic and caval segment united to the ends of the aorta and vena cava. The circulation was immediately re-established into the suprarenals. Four experiments were performed. On two animals the glands were found degenerated or atrophied. Two others are still living, more than six months after the operation, and will be examined later. It is probable that the glands are resorbed.

The transplantation of the ovaries is so successful by simple implantation that a complicated vascular operation seems to be necessary. This question was almost completely settled several years ago, chiefly by the experiments of Knauer and also Foa.

In 1907 Guthrie obtained excellent results on chickens and observed offsprings from the grafted animals. The clinical applications of Knauer, experiments by Morris and many others are too well known to be discussed again.

The spleen of dogs is favorably disposed from an anatomic standpoint for transplantation. The operation is very simple. The spleen is extirpated, washed out with Locke's solution and immersed in a jar full of the same solution. Afterward the spleen is removed from the jar, placed in the abdominal cavity and the peripheral ends of the splenic vessels are united to the central ends. The nerves are sutured and organ suspended by suture of the gastrosplenic pedicles.

The operation is easy when the animal is of large size. Several months ago I performed this operation twice only, on a medium-sized dog and also on a large dog. Both animals recovered uneventfully and are in good health.

The transplantation of the intestines consists of extirpating a loop of intestine from an animal and of substituting it for a loop of intestine of another animal. Anastomosis of the vessels is performed. The intestine almost immediately takes on its normal color, and strong peristaltic movements appear. Then the continuity of the gut is re-established by two intestinal anastomoses. I performed this operation only twice. In each case infection occurred. The postmortem examination showed gaseous cysts under the peritoneal coat of the transplanted loop of intestine. It is probable that during the period of anemia the microbes of the intestine penetrate the wall. In this case a successful transplantation of the intestine will be probably unrealizable, or, at least, exceedingly difficult.

In 1902 the first attempt of transplanting a kidney was made by Ullmann. The same year I performed several transplantations of the kidneys on dogs. Septic complications occurred in every case. In 1905 Floresco published a few cases of the transplantation of the kidney in the lumbar region. Guthrie and I examined for the first time the functions of a transplanted kidney and found that they are not very different from the normal.

The transplantation in mass of the kidneys consists of extirpating from a first animal both kidneys, their vessels and the corresponding segments of the aorta and vena cava, their nerves and nervous ganglia, their ureters and the corresponding part of the bladder; of placing this anatomic specimen into the abdominal cavity of a second animal whose normal kidneys have been previously resected and the aorta and vena cava cut transversely; and of suturing the vascular segments between the ends of the aorta and vena cava, and of grafting the flap of bladder onto the bladder of the host. In every case the re-establishment of the renal functions was observed. These functions were determined by the character of the urines and the general condition of the animals.

The secretion of urine may begin as soon as the arterial circulation is re-established. In several cases clear urine flowed from the ureters while the flap of bladder was being grafted onto the host. More often no urine was seen flowing from the ureters immediately after completion of the operation. But the secretion always began during the first twenty-four hours. In some cases the amount of urine during the first twenty-four hours was more than 100 c.c. However, a cat urinated only 25 c.c. during the first twenty-four hours; the second day the amount of urine passed was only 16 c.c.; this urine was highly concentrated and contained much urea. In all the experiments the urinary secretion went on as long as the animal lived. Every cat urinated abundantly every day, but the animals presented sooner or later some complication, which modified in some measure the renal functions.

As is to be expected after an operation as complex as the transplantation in mass, various accidents occurred; hydronephrosis, intestinal compression by peritoneal adhesions, volvulus, phlegmon, puerperal infection, compression of the renal veins by organized hematoma of the connective tissue, which were the direct or indirect causes of death in these animals. It is well known that several of the complications, especially the compression of the renal veins, produce grave renal lesions of their own.

In some cases there was a little albumin during the first days ranging from 0.50 to 0.25 for 1,000 c.c. In other cases the albumin disappeared about one week after the operation.

The general condition of the animal can be used, in some measure, to indicate the perfection of the urinary elimination. One cat was in excellent health until the twenty-ninth day after the operation. Then gastro-intestinal symptoms appeared, and death occurred on the thirty-first day after the operation.

In another case, on the eighteenth day after the transplantation albumin appeared in the urine and a direct examination of the kidneys was made to ascertain the cause. The general condition was little affected by the operation and the albumin disappeared on the twenty-first day, but reappeared again a little later. On the thirty-fifth day the animal was very weak and emaciated. She died on the thirty-sixth day of acute calcification of the arteries.

We can conclude from these results that the functions of the kidneys re-established themselves after the transplantation.

The histologic examination of the transplanted kidneys showed that the organs presented some lesions, very slight in some cases, and more marked in others. The lesions belonged to two classes: hydronephrosis and subacute interstitial nephritis. Nephritis is not a necessary complication of the transplantation, for it was completely absent in some cases. It is possibly due to secondary causes.

The transplantation in mass of the kidneys permits of an almost ideal reconstruction of the urinary apparatus after a double nephrectomy. However, it is a complex operation, and the animal is exposed to many complications. The method called "simple transplantation" exposes the kidney to ureteral or vascular troubles, but it is practically harmless for the animal itself. This operation consists simply of dissecting a kidney, cutting the renal vessels and ureter a few centimeters below the hilus, implanting the organ on the same, or another animal, and of anastomosing its vessels to the renal vessels of the host.

I performed the double nephrectomy and the replantation of one kidney in five dogs. The secretion of the urine remained normal as long as no ureteral complication occurred. The conditions of the kidneys were excellent. A little more than two months after the operation, the location of the anastomoses of the renal vein could not be detected. The anastomosis of the renal artery was seen as a small and indistinct line on the intima.

The remote results of this operation are excellent. On February 6 the left kidney of a middle-sized bitch was extirpated, perfused with Locke's solution and put into a jar of Locke's solution at the temperature of the laboratory. The ends of the vessel were prepared for anastomoses, and afterward the kidney was replaced into the abdominal cavity. The circulation was re-established after suture of the vessels and the ends of the ureter united. The animal made an uneventful recovery. Fifteen days afterward the right kidney was extirpated. The animal remained in perfect health. The urine did not contain any albumin. It is generally of low density. To-day the animal is in perfect condition.

This observation demonstrates definitely that an animal can live in normal condition after both kidneys have been extirpated and one replaced. It removes also, without need of further discussion, the objections of the experimenters who claim that the section of the renal nerves, the temporary suppression of the renal circulation, or the perfusion of the kidneys produce necessarily dangerous and even fatal lesions of this organ.

III. TRANSPLANTATION IN MASS OF THE AURICLE, THE EXTERNAL AUDITORY CANAL, PART OF THE SCALP, LYMPH GLANDS OF THE NECK AND PARTS OF THE COMMON CAROTID ARTERY AND EXTERNAL JUGULAR VEIN FROM A DOG TO ANOTHER DOG.

By using the method of transplantation in mass it becomes possible to perform the transplantation of a whole anatomic region, with its main artery and vein. The limits of the anatomic specimen must be approximately those of the field of distribution of the main artery. But, on account of the collateral circulation, it would be impossible to transplant a very much larger region. For instance, the whole scalp can probably be transplanted successfully if the vascular connections are re-established on one side only.

I succeeded in transplanting the auricle, the external auditory canal, part of the scalp, the lymph glands of the neck, and parts of the common carotid artery and external jugular vein from a dog to another dog.

The auricle and the transplanted tissues were in normal condition. The temperature of both auricles, normal and transplanted, were about the same. The transplanted ear was as thin and glossy as the normal one. Except for the difference of color, it could not have been seen that the ear did not belong to the dog.

IV. THE TRANSPLANTATION OF LIMBS.

The transplantation of a limb from one animal to another of the same species is a problem very much simpler than the transplantation of a gland. It presents some difficulties, merely from a surgical standpoint. The anatomic structures of a limb are resistant and do not undergo autolytic modification after a short time of anemia. Besides, it is well known, from a clinical standpoint, that the circulation of a limb can be stopped completely for several hours by an Esmarch bandage without further occurrence of any lesions or nervous troubles. It is permitted also to suppose that structures, such as skin, muscles, vessels, bones, etc., are not very sensitive to slight modifications in the composition of the serum, and that after transplantation the blood of their new owner would not be toxic for them. Besides, it is almost certain that the new limb would have no harmful influence on his host, as may happen after a transplantation of the kidneys. Therefore, there is apparently no reason why the leg or the arm of an animal or of a human being could not be transplanted successfully on another animal of the same species or another human being.

In April, 1907, I found that a thigh, extirpated from the fresh cadaver of a dog, and transplanted onto another dog, could begin to heal in a very satisfactory manner.

This case demonstrated that it is possible to re-establish the circulation into a transplanted thigh and to obtain cicatrization of the anatomic structures. The union of the vascular anastomoses was excellent and the circulation of the limb constantly normal. Therefore, it was probable that, by using a little better technic, definitive results could be obtained.

A few other operations were performed, but in every case breaking of the bone suture or infection occurred. Nevertheless, by using more careful asepsis in the transplantation of the leg from one fox terrier to another, the new leg united to its host by first intention.

This experiment is the first example of successful grafting of a new limb on an animal. It demonstrates that the leg, in spite of the change of owner, remains normal. After a short period of edema and of high temperature, due perhaps to secondary causes, the new leg assumed the same appearance as the normal one. The temperature of the new foot did not differ from that of the other posterior foot. The healing of the cutaneous incision occurred normally, and the appearance of the skin was the same above and below the circular incision—that is, on the normal and transplanted part of the limb. No trophic troubles occurred. The cicatrization of a small exploratory incision made on the transplanted foot became slightly infected. Nevertheless, it healed rapidly, and the cicatrization was so perfect that the scar was not discernible on the twenty-second day. The normal and new tibias were strongly united by a fibrous callus. The question of the regeneration of nerves, and of the re-establishment of the functions, has still to be studied.

V. CONCLUSIONS.

It is proved that the remote results of the transplantation of fresh vessels can be perfect, and that arteries, kept for several days or weeks outside of the body, can be transplanted successfully, and that after more than one year the results remain excellent. It has been shown, also, for the first time, that transplanted kidneys functionate, that an animal, having undergone a double nephrectomy and the transplantation of both kidneys from another animal, can live normally for a few weeks, and that an animal which has undergone a double nephrectomy and the graft of one of his own kidneys can recover completely and live in perfect health for eight months, at least. Finally, it has been demonstrated that a leg extirpated from a dog and substituted for the corresponding leg of another dog, heals normally.

Newspapers as a Guide to Science.—The *Lancet* quotes the following gem of exposition from the editor of an English newspaper that was endeavoring to explain to its readers the problems raised by Mr. Francis Darwin's address at the recent meeting of the British Association for the Advancement of Science (see editorial, THE JOURNAL, Sept. 26, 1908, p. 1086): "Here, again, we pause to inquire who and what are the somatists? They are those who believe in the inheritance of acquired characters. The designation, which is new, is rather farfetched, but has a certain applicability, soma being the juice of a plant offered in libation to a Hindu god to strengthen him in his fight with the demons. It is identified—and here its applicability comes in—with the invigorating and immortalizing principles in Nature."

THE STATISTICS OF ENDOANEURISMORRHAPHY, OR THE RADICAL CURE OF ANEURISM BY INTRASACCULAR SUTURE.

SUMMARY OF CASES REPORTED UP TO JUNE 1, 1908.*

RUDOLPH MATAS, M.D.
NEW ORLEANS.

In 1902 I reported to the American Surgical Association, at its meeting in Albany, the first five cases of aneurism treated by this method, which were then described for the first time. The first case dated as far back as March 30, 1888, a little more than twenty years ago. In the transactions of the same association for 1895 the list was increased to 24 operations performed by 15 different operators. At the fifty-seventh annual session of this association, held in Boston, June 1, 1906, 34 operations performed by this method by 21 American operators,[1] were reported, and now (June 3, 1908) I am able to present a total of 85 cases treated by 52 surgeons, of whom 49 are American and 3 foreign. Thus, within the space of six years, since the first systematic description of the method of intrasaccular suture, the list has increased from 5 to 85 observations—a most gratifying increase, when we consider the comparative rarity of surgical aneurism in civil life, and the fact that the method suggested was a radical departure from the classical and accepted methods of practice.

For the liberal recognition given by the profession to the suggestions which I have had to offer and the generous encouragement which I have received, I am duly grateful, and I avail myself of this opportunity to publicly acknowledge my indebtedness to the many correspondents, collaborators and colleagues whose valued contributions, friendly criticism and sympathetic commendation have alone made possible the compilation of the convincing mass of evidence which I have now the honor to submit to you. I fervently trust that whatever the future may have in store for the cure of aneurism, the final judgment may be that the fundamental ideas which underlie the method of treatment here advocated are sound and conducive to surgical progress. In the short time allowed for this discussion I shall not attempt to make any comparative statement of the relative merits of endoaneurismorrhaphy as contrasted with other methods of treating aneurism, or engage in any controversy in reply to criticisms or commentaries which have come from various sources, and which, whether favorable or otherwise, I appreciate with due deference, but can not now consider with propriety, as the limitations of time will only permit of the presentation of the facts, which I trust will speak for themselves.

SYNOPSIS.

Total number of cases (arteriovenous aneurism excluded)	85
Total number of operators	52
Typical operations	77
Atypical operations	8
American operators	49
Foreign operators	3

GEOGRAPHICAL DISTRIBUTION.

UNITED STATES AND CANADA.

State and City. Operators and No. Cases.	Total.
Alabama:	
Birmingham—George S. Brown, 1	1

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. See, for references to this and previous contributions by the author, THE JOURNAL A. M. A., Sept. 29, 1906, xlvii, 990-993.

California:
San Francisco—Thos. W. Huntington, 1; Stanley Stillman, 1 (atypical)... 2
District of Columbia:
Washington—James F. Mitchell, 1; George T. Vaughan, 1 (atypical)..... 2
Georgia:
Atlanta—F. W. McRae, 1.
Savannah—Craig Barrow, 4; G. S. White, 2... 7
Illinois:
Chicago—C. E. Humiston, 1; Carl Beck, 1..... 2
Indiana:
Indianapolis—H. O. Pantzer, 1..... 1
Kansas:
Jetmore—Anson B. Ingells, 2..... 2
Kentucky:
Lexington—W. O. Bullock, Jr., 4.
Lebanon—R. C. McChord, 1..... 5
Louisiana:
New Orleans—Matas, 8; Danna, 7; Stafford, 3; Gessner, 2; Parham, 1; Martin and Parham, 1 (atypical); Kohlman and Newman, 1; Perkins, 1; S. P. Delaup, 1 (atypical) 26
Massachusetts:
Boston—J. C. Munro, 2..... 2
Mississippi:
Natchez—J. G. Lilly, 1 (atypical)..... 1
Missouri:
Kansas City—J. F. Binnie, 3; W. J. Frick, 1.. 4
North Carolina:
Wilmington—Thomas W. Green, 1..... 1
New York:
New York—Robert T. Morris, 1; Willy Meyer, 1; Robert Abbe, 2; F. H. Markoe, 1; W. Blake, 1..... 6
Pennsylvania:
Philadelphia—Frazier, 3; Gibbon, 2; Da Costa, 1; Stewart, 1; Van Lennep, 1.... 8
Rhode Island:
Providence—James W. Keefe, 1..... 1
Tennessee:
Memphis—M. Goltman, 2 2
Virginia:
Norfolk—Levi Old, 2; L. Brown, 1..... 3
Washington:
Tacoma—James R. Yocom, 1.
Puget Sound—D. N. Carpenter, 1..... 2
Canada:
Montreal—J. M. Elder, 1..... 1

Total in United States and Canada.....79

FOREIGN.

Spain:
Saragossa—R. Lozano, 4..... 4
Italy:
Naples—G. Del Conte, 1.
Venice—D. Giordano, 1 (atypical)..... 2

Total of foreign..... 6

Grand Total 85

ANATOMIC DISTRIBUTION.

TYPICAL AND ATYPICAL.

Abdominal aorta	2	External carotid	1
External iliac	1	Subclavian	1
Gluteal	1	Subclavio-axillary	2
Iliofemoral	5	Axillary	1
Femoral	18	Brachial	2
Popliteal	50		
Posterior tibial	1	Total	85

(Over 58 per cent. popliteal; over 21 per cent. femoral.)

TYPES OF ENDOANEURISMORRHAPHY.

OBLITERATIVE, FIFTY-NINE CASES.

Popliteal (4 atypical)	32	External iliac	1
Femoral (1 atypical)	12	Posterior tibial	1
Iliofemoral (2 atypical)	4	Gluteal	1
Abdominal aorta	2	External carotid	1
Subclavio-axillary	2	Subclavian	1
Brachial	2		

RESTORATIVE, THIRTEEN CASES.

Popliteal	8	Femoral	5

RECONSTRUCTIVE, THIRTEEN CASES.

Popliteal	10	Iliofemoral	1
Femoral	1	Axillary	1

		Per cent.
Total obliterative	59	69.3
Total reconstructive	13	15.4
Total restorative	13	15.4

POPLITEAL, FIFTY CASES.

OBLITERATIVE (TYPICAL), TWENTY-EIGHT CASES.

R. Matas	4	F. W. Parham	1
J. A. Danna	3	R. Abbe	1
W. O. Bullock, Jr.	2	J. C. Da Costa	1
Craig Barrow	2	Randall Hunt	1
H. B. Gessner	2	C. E. Humiston	1
S. W. Stafford	2	T. W. Huntington	1
J. H. Gibbon	2	J. W. Keefe	1
George C. Miller	1	W. Blake	1
L. Lozano	2		

ATYPICAL CASES, FOUR.

S. Stillman	1	J. D. Lilly	1
S. P. Delaup	1	Carl Beck	1

POPLITEAL, RESTORATIVE, EIGHT CASES.

Hugo O. Pantzer	1	R. C. McChord	1
J. F. Binnie	1	Anson B. Ingells	1
C. H. Frazier	1	F. T. Markoe	1
W. Meyer	1	M. Goltman	1

POPLITEAL, RECONSTRUCTIVE, TEN CASES.

Craig Barrow	1	I. Brown	1
J. F. Binnie	2	J. R. Yocom	1
J. A. Danna	1	W. J. Frick	1
Robert Morris	1	F. T. Stewart	1
G. A. Van Lennep	1		

RESULTS IN POPLITEAL GROUP.

Deaths, 1 (tetanus, Stafford).
Gangrene, 2 (Stafford, Lozano, vein ligated).
Relapses, 3 (Morris, Danna, Binnie, all reconstructive operations).
Secondary Hemorrhage.—(Binnie's third case, six weeks after suture and four weeks after ligature of superficial femoral. Recovery after amputation).

Two obliterative operations (Matas and Craig Barrow) were performed after spontaneous gangrene of the foot had occurred; the operations were undertaken with the hope of arresting further progress of gangrene, by relieving tension in the popliteal space and thereby improving the chances of the collateral circulation. Recovery after amputation of leg in both instances.

FEMORAL ANEURISM.

Typical, 17; atypical, 1—total, 18.

OBLITERATIVE, ELEVEN CASES.

R. Matas	1	J. F. Mitchell	1
J. A. Danna	2	George S. Brown	1
W. O. Bullock	2	T. M. Green	1
C. H. Frazier	1	S. W. Stafford	1
D. N. Carpenter	1		

RESTORATIVE, SIX CASES (ONE ATYPICAL).

George R. White	2	J. M. Elder	1
Kohlman and Newman	1	G. Del Conte (atypical)	1
		M. Goltman	1

RECONSTRUCTIVE, ONE CASE.

Craig Barrow 1

RESULTS IN FEMORAL GROUP.

Death, 1 .....Stafford
Gangrene, 2 .....Stafford, Frazier
Secondary hemorrhage, 0.
Relapses, 0.

ILIOFEMORAL ANEURISM, FIVE CASES (TWO ATYPICAL).

OBLITERATIVE, FOUR CASES (TWO ATYPICAL).

Matas, 1 (recovery).
Levi Old, 1 (hemorrhage, secondary ligature of iliac, gangrene, exhaustion, death).
Atypical, 2 cases.
G. T. Vaughan, 1 (ligature, recovery from operation; death in 4 months from heart disease).
D. Giordano, 1 (recovery).

RECONSTRUCTIVE, ONE CASE.

Danna, 1 (relapse, rupture, death).

EXTERNAL ILIAC.

Levi Old, 1, obliterative (death from pulmonary embolism).

ABDOMINAL AORTA.

J. C. Munro, R. Lozano, 2, obliterative (death from shock, hemorrhage during operation).

POSTERIOR TIBIAL.

W. M. Perkins, 1, obliterative (recovery).

GLUTEAL.

Robert Abbe, 1, obliterative (recovery).

EXTERNAL CAROTID.

Floyd McRae, 1, obliterative (recovery).

SUBCLAVIAN.

Martin and Parham, 1, atypical, obliterative (recovery).

SUBCLAVIO-AXILLARY.

J. C. Munro, R. Lozano, obliterative (recovery).

AXILLARY.

Anson B. Ingells, 1, reconstructive (recovery).

BRACHIAL.

Matas, 2, obliterative (recovery).

RESULTS.

Total, 86 cases: 78 recoveries and 8 postoperative deaths; secondary hemorrhages, 2; gangrene, 4; relapses, 4 in all in reconstructive cases).

DEATHS.

I. Obliterative Group (59 cases):	
Abdominal aortic (Lozano and Munro)	2
External iliac (Levi Old)	1
Iliofemoral (Levi Old)	1
Femoral (Stafford)	1
Popliteal (Stafford)	1
Total	6
II. Restorative (13 cases)	0
III. Reconstructive (13 cases) (Iliofemoral, Danna)	1*
Total deaths	7

SECONDARY HEMORRHAGE.

I. Obliterative (59 cases)	2
Iliofemoral (Levi Old)	1
II. Restorative (13 cases)	0
III. Reconstructive (13 cases)	0
Popliteal (Binnie)	

GANGRENE OF PERIPHERAL PARTS.

I. Obliterative (59 cases)	4
Popliteal (Stafford, Lozano)	2
Femoral (Frazier)	1
Iliofemoral (Levi Old)	1
II. Restorative (13 cases)	0
III. Reconstructive (13 cases)	0

RELAPSES.

I. Obliterative (59 cases)	0
II. Restorative (13 cases)	0
III. Reconstructive (13 cases)	4
Popliteal (Morris)	1 (amputated; recovery).
Popliteal (Danna)	1 (cured by secondary obliterative).
Popliteal (Binnie)	1 (amputated; recovery).
Iliofemoral (Danna)	1 (ruptured; death).

COMMENTARIES.

Mortality.—To sum up the review of the mortality, if we eliminate the two aortic cases of Lozano and Munro, the popliteal of Stafford (tetanus); the femoral of Stafford (rupture of secondary aneurism, ligature of iliac, gangrene and sepsis), the external iliac of Levi Old (pulmonary embolism), five would be eliminated from the list, leaving two which can be directly charged to the operative procedure, or, at least, as direct postoperative sequences. The legitimate mortality, thus reduced from 7 to 2 deaths in 85 cases, would be equivalent to 2.3 per cent.; secondary hemorrhage, 2 in 85 cases, or 2.3 per cent.; gangrene, 4 in 85 cases, or 4.6 per cent. If we eliminate Lozano's and Stafford's popliteal cases, in which the vein was simultaneously injured and ligated; and Levi Old's iliofemoral, in which gangrene followed the secondary ligature of the external iliac, the percentage of gangrenes legitimately attributable to the intrasaccular operation would be one in 85, or 1.1 per cent.

Relapses.—These occurred only in the reconstructive operation; four in thirteen, or 28.9 per cent., or to the total, 4.7 per cent. It is to be noted that, in one of these cases the aneurism was cured permanently after the relapse by a secondary obliterative operation (popliteal, Danna), and from a previous knowledge of the conditions existing in the sac in two other cases, one popliteal (Morris) and one iliofemoral (Danna), there is every reason to believe that a similar cure could have been effected if an obliterative operation had been performed after the relapse had been recognized. In only one case (Binnie's popliteal) the local conditions would have been apparently unfavorable to any local intervention.

In closing this brief summary of the results thus far obtained by the method of endoaneurismorrhaphy, I would state that there are many important and hitherto undescribed details in the anatomy and morphology of aneurismal sacs, as well as their various modes of development, which have come to light since the operating surgeons who have adopted it have been compelled to examine the interior of the aneurismal cavities in order to determine the technic suited to each individual case. In fact, I believe that a new chapter in the study of aneurism has been added as a result of the opportunities offered by this method of procedure. The conclusions drawn from this study (which will be published later) will be of decided practical value in the application of the technic.

It would also appear that the fundamental principle on which this operation is based, viz., that the endothelial lining of the vascular system which is continued in the aneurismal sac, is analogous in its pathologic behavior to the reactions and reparative processes which occur in the endothelial surfaces of other serosæ, such as the peritoneum and the pleuræ, has been absolutely confirmed by the mass of evidence presented in these eighty-five operations.

Another fundamental conclusion arrived at after a study of the restorative and reconstructive cases is that the law of that great master of Pavia, Scarpa (1817), to the effect that "a complete and radical cure of aneurism can not be obtained in whatever part of the body this tumor is situated unless the ulcerated, lacerated or wounded artery from which the aneurism is derived is, by assistance of Nature or of Nature combined with Art, obliterated and converted into a perfectly solid ligamentous substance"—a dictum which for nearly a century has never been disproved—is now challenged by the experience of this method in its restorative and reconstructive types. The conclusion is likewise supported by modern experimental research, which has fully demonstrated the successful suture and resection of wounded arteries, with complete restoration of the lumen of the artery and the functional integrity of the sutured vessel. All honor to Murphy and Carrel and the great company of distinguished workers who have followed in their footsteps in demonstrating this fundamental fact of such vital importance to the progress of vascular surgery. However, let us not forget that we owe largely to the genius and sagacity of Scarpa one of the earliest and most convincing statements of the doctrine of the unity of the serosæ and of the endothelial surfaces in their specific reactions when subjected to irritation.

It is the tardy recognition of this great truth, in the operation here advocated, that has made the plastic obliteration of sutured aneurismal orifices and of aneurismal cavities as much a matter of common experience as the adhesion and plastic union of opposed serous surfaces when sutured, is the fundamental and unfailing experience of the abdominal surgeon.

There are also points in the technic that have been recently elaborated, and of these the mode of obliterating the sac in special cases, according to pathologic conditions or topographic or regional requirements, is important. One of the features of the technic of the greatest importance is that of prophylactic hemostasis, which must be made absolute if a deliberately planned operation is to be successfully carried out. In regard to preventive hemostasis, it must be stated that the problem increases in complexity and difficulty as the aneurism to be attacked approaches the root of the limbs and the neck where constriction is impracticable. This preliminary control of the circulation by obtaining a mastery of the great regional trunks in order to control not only the direct circulation in the aneurism but that which is supplied by the collateral vessels, still

remains in the treatment of aneurisms by the intrasaccular methods, as good and thorough a test of the training and resources of a surgeon as it ever was in the days of the ligature and of extirpation.

To illustrate what is meant, I need only consider the difficulties in the way of completely controlling the circulation in high femoral, iliofemoral and iliac aneurisms in which the opening of the sac may be followed by the most formidable and even fatal hemorrhage if the inexperienced operator has trusted for prophylactic hemostasis to the compression or temporary ligation of the parent artery immediately above and below the sac. The cases of femoral aneurism reported by Frazier and Mitchell are good illustrations of the fallacy of such procedures and of the fact that it was only the resourcefulness and skill of these brilliant surgeons that averted a calamity that would have surely followed in less able hands. The difficulty in controlling the hemorrhage lies in the fact that numerous and complete collateral branches open into the parent trunk at its junction with the sac, or empty into the sac itself in the intermediary space between the in'et and the outlet of the aneurism. In femoral, iliofemoral and iliac aneurisms of large size and of the fusiform type the control of the parent trunk immediately above and below the sac is of no avail; to operate bloodlessly, the great vessel commanding the entire collateral supply of the limb must be compressed. In these cases it is only by direct compression and control of the common iliac through an abdominal incision that the collateral hemorrhage from the obturator, sciatic, pudic and gluteals can be controlled.

In a case of iliofemoral aneurism which recently came under my observation, even the compression of the common iliac and of the abdominal aorta at the bifurcation was not sufficient to secure an absolutely dry field. On opening the sac, which had apparently collapsed after direct compression of the common iliac, blood spurted out in a considerable stream, which was found to come from a well-developed epigastric. This could not be controlled by the direct compression of the common iliac or of the abdominal aorta. It was only by direct pressure on the bleeding orifice in the sac and its direct occlusion with a clamp that the bleeding was arrested and that the technic was carried out to completion with safety and deliberation. However, the temporary compression of the common iliac, which controls all the branches of collateral importance given by its internal branch is sufficient, as a rule, to secure a safe, if not an absolutely ischemic field in the majority of cases.

In the upper extremity, the hemostatic problem increases in gravity as we approach the axilla and the subclavian areas. In axillary aneurism, the third division of the subclavian should be controlled, while an elastic bandage applied to the arm as near as possible to the lower pole of the sac prevents the lower collaterals from feeding the aneurism after it is opened. The circulation in the right subclavian should be controlled by a preliminary compression of the innominate and, on the left side, by the first division of the subclavian.

In carotid aneurisms there are two problems to consider, the hemostatic problem and the secondary effects on the brain of an obliterative operation. In all these cases, especially in the pathologic aneurisms, and those which occur in all subjects above 40, the efficiency of the collateral circulation in nourishing the brain should be tested by temporary methods of occlusion, which must not damage the artery after remaining *in situ* over 48 hours while the patient's cerebral circulation is kept under observation. Here Dr. Halsted's ingenious aluminum bands, Crile's or other clamps, or the temporary protected ligatures of Jordan and Doberauer may be applied with advantage. The danger of embolism following the restoration of the circulation after the application of these tests is to be especially feared in cases of carotid aneurism. It is a question that is yet undecided whether it is not the better plan to limit the temporary occlusion to the internal carotid above the bifurcation and beyond the sac so that while the collateral circulation through the circle of Willis is being tested, the circulation in the aneurism itself may not be interfered with sufficiently to favor the liberation of an embolus, should the release of the constriction become necessary.[2] I have recently found that with a simple band made of strands of silver wire, gradual or total compression can be applied to the carotid or any other vessel by using a minute metal clip which holds the wires together in parallel rolls and adjusts the compression very easily to any desired degree. The great desideratum in every case is to apply a device which will control the circulation in the vessel absolutely, without damaging the internal tunics and which can be removed at any time within the test period (forty-eight hours) should danger symptoms appear in the brain, or in the peripheral parts, when aneurisms in the limbs are being considered. This is well accomplished by Halsted's bands when applied as a means of partial or total occlusion. But the expertness required in properly adjusting and rolling them around the artery, or unrolling them when this may be required, without damage to the vessel, make it desirable that a simpler means of carrying out Dr. Halsted's admirable principles be adopted.

In conclusion, our experience demonstrates that in all *sacciform* aneurisms with a single orifice of communication, the closure of this orifice by suture, without interfering with the lumen of the artery or its blood-carrying function, should be regarded as an obligate part of the operation. The indications, however, for the reconstructive operation in *fusiform* aneurisms with separate orifices of entrance and exit, must still be considered *sub judice*.

When is the reconstructive operation or arterioplasty in an aneurismal sac to be regarded as necessary or justifiable?

Without attempting to discuss with Binnie the special types of fusiform aneurism in which the reconstruction of an artery is more or less indicated, I will simply state that in the large majority of the reported cases of aneurism of the extremities, and especially of the popliteal and femoral (which furnish the most crucial test of the efficiency and safety of any radical method) the simple obliterative procedure proved thoroughly satisfactory in accomplishing its purpose without interfering with the vitality of the distal parts.

2. The value of the *temporary* occlusion of the common or internal carotid for thirty-six or forty-eight hours, as a preliminary test of the competence of the cerebral circulation prior to the permanent occlusion or extirpation of these vessels, is based on the fact that cerebral disturbances occur, as a rule, immediately or a few hours after the carotid circuit has been interrupted. Usually, characteristic or premonitory cerebral disturbances appear within the first twelve or thirty-six hours, often *immediately* after the ligation. There are exceptional cases, however, in which postoperative hemiplegia and progressive signs of softening have appeared from one to three weeks after the ligation of the common carotid. These late postoperative brain complications are more likely to occur in suppurating or septic cases as the result of thrombosis or embolism. They were frequent in the pre-antiseptic period. Thus the patient on whom the first ligation of the common carotid for aneurism of this vessel (1805) was performed by Sir Astley Cooper, succumbed on the twenty-first day after the operation in a state of coma preceded by hemiplegia.

The evidence which has accumulated and which has been gathered in these reports, is sufficient to prove that the obliterative operation accomplishes the cure of the aneurism with less risk to the distal parts than either the ligature or the method of extirpation. This would now appear to be a proved clinical fact. The conditions which must determine in any given instance whether a reconstructive operation is indicated or an obliterative operation can be performed with absolute safety or not, will never be answered satisfactorily until an unerring clinical test of the adequacy of the collateral circulation after the preliminary compression of the main trunk which feeds the aneurism, will be at our command. The method of determining the peripheral blood pressure in the very tips of the extremities recently devised by the Russian surgeon, Korotkow, as the result of his experience with arteriovenous aneurisms in the Russo-Japanese war, and applied successfully by him, Petrov and v. Oppel,[3] may prove the final solution of the problem.

If the peripheral blood pressure is shown by the manometer (a modified Gaertner's tonometer) to be more or less sustained after the compression of the main trunk above the aneurism, then the obliterative operation may be safely applied. If, on the other hand, the blood pressure falls to zero, it is evident that the collateral circulation is inadequate and that no chance should be taken with the obliterative operation or with any procedure whatever (ligature, extirpation, etc.) which would permanently occlude the parent artery. In these rare cases (as a rule, aged or advanced arteriosclerotic subjects) the "reconstruction" of the artery is indicated, if only as a provisional measure. If this is impracticable, it may be the safer plan to limit the intervention to a *partial* occlusion of the main trunk with a constricting band on the proximal side, close to the aneurism, by the method suggested by Dr. Halsted, trusting that when obliteration finally takes place a collateral circulation may be developed sufficiently to preserve the vitality of the distal parts.

The objection to this plan is that, in advanced arteriosclerotic subjects, the collaterals do not always develop, for obvious reasons; that a thrombus may form at the seat of constriction; and again, in other cases, that the operation may fail to cure owing to the persistence of the circulation in the sac. Furthermore, as in the case of the ligature, the persistence of the tumor, after obliteration of the main artery, when coagulation takes place, does not relieve the tension in certain confined and compressed spaces (as in the popliteal area), where the evacuation of the sac is necessary to improve the perianeurismal and the distal circulation.

One of the great advantages of the intrasaccular method is that the sac is thoroughly emptied of its contents and that the perianeurismal tension is at once relieved, giving not only better opportunities for the development of the collateral circulation, but also relieving the obstruction to the return venous flow, as is so apparent in many edematous and choked limbs in advanced cases of popliteal aneurism.

NOTE.—Surgeons who have had personal experiences with the intrasaccular method (endoaneurismorrhaphy) will greatly oblige the author by communicating with him and furnishing clinical reports, which will be utilized and duly credited in a further statistical study of the reported cases.

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3. Von Oppel: Arch. f. Klin. Chir., 1908, lxxxv.

SUCCESSFUL LIGATION OF THE INNOMINATE ARTERY.*

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MEMPHIS.

Valentine Mott, who performed the first operation for ligation of the innominate artery in 1818, says:

Since the publication of Allan Burns' invaluable work on the surgical anatomy of head and neck, I have been in the habit of showing in my surgical lectures, the practicability of securing in a ligature, the arteria innominata; and I have had no hesitation in remarking that it was my opinion that this artery might be taken up for some condition of aneurisms and that a surgeon with a steady hand and a correct knowledge of the parts would be justified in doing it.

When the proper case presented itself to him he said further: "I could not for a moment hesitate in recommending and performing the operation."

METHOD OF CLASSIFICATION.

I am presenting for consideration five classes of cases tabulated as follows:

1. Cases in which the innominate artery alone was ligated for subclavian aneurism. In this class the arteries are necessarily diseased; and the case I present to you falls under this class (Table 1).

2. Cases in which the innominate, carotid and vertebral arteries were ligated for aneurism of the innominate, carotid and subclavian arteries. Here also the vessels are diseased and more than one vessel is ligated, an extra precaution against hemorrhage or return of the aneurism (Table 2).

3. Cases in which the innominate artery was ligated for secondary hemorrhage and in which the vessels probably were not diseased and greater prospects of repair might be expected (Table 3).

4. Cases in which the artery ligated is indefinite and reported as innominate ligations; also miscellaneous cases (Table 4).

5. Cases in which ligation of the innominate artery was attempted but in which the operation was not completed (Table 5).

In the first class of cases, if Burrell's case is counted as a recovery, we have 0.11 per cent. recoveries. If this case is regarded as unfavorable, then the case I present is the only recovery in this class and shows 0.55 per cent. recoveries.

In the second class a percentage 35.7 is shown.

In the third class 33.3 per cent of the patients recovered.

In the fourth class there were no recoveries.

In the fifth class, strangely enough, we have a recovery percentage of 40 per cent.

Of the 46 cases actually accomplished, 15, or 32.5 per cent., were done in the United States of America and credited to the following cities: New York, 5 (Valentine Mott, Lynch, A. B. Mott, Bull, Curtis); Boston, 2 (Burrell, Gray); Philadelphia, 1 (Harte); San Francisco, 2 (Cooper, 2); New Orleans, 2 (Smythe, De Laup); Shreveport, 1 (Schumpert); Baltimore, 1 (Hall); Memphis, 1 (Burns). The United Kingdom gets 16 cases, with 8 to England, 3 to Scotland, 4 to Ireland and 1 to Wales. Mexico gets 1, Germany 1, India 2, Russia 4, France 2, Australia 2, Italy 1.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

TABLE 1.—CASES IN WHICH THE INNOMINATE ARTERY ALONE WAS LIGATED FOR SUBCLAVIAN ANEURISM.

No.	Name and Residence of Operator.	Age, Sex.	Condition Requiring Operation.	Ligature Used.	Date of Hemorrhage, if any.	Time of Death.	Cause of Death.	Place of Record.	Remarks.
1.	Mott, New York, 1818.	57*	Aneurism of innominate, carotid and subclavian, 2½ months.	Silk.	Twenty-third day.	Twenty sixth day.	Hemorrhage.	Medical Repository, New York, 1818, i.	
2.	Graefe, Berlin, 1822.	30*	Aneurism right subclavian, rapid growth.	Not described.	A few days before death.	Sixty-seventh day.	Hemorrhage.	Med. and Phys. Jour., 1823, 475; Brit. Med. Jour, 1882, 728.	
3.	Arendt, St. Petersburg, 1827.	36*	Subclavian aneurism; 1 year.	Not mentioned.	None.	Eighth day.	Sepsis exhaustion.	Guy's Hosp. Rep., xvii, p. 126; Wyeth, DeLaup.	Innominate artery closed.
4.	Dupuytren, Paris, 1834.	*	Subclavian aneurism.	.....	.....	Third day.	Hemorrhage.	Lecons Oral. de Clin. Chirurg., 1834, 611.	
5.	Lizars, Edinburgh, 1837.	36*	Subclavian aneurism; 11 months.	Not described.	Nineteenth, twentieth and twenty-first days.	Twenty-first day.	Hemorrhage.	Lancet, 1837, ii, 445-607.	
6.	Gore, R. I., Bath, Eng., 1856.	52*	Subclavian aneurism; 3 years.	Hemp.	.....	Seventeenth day.	Shock.	Lancet, 1878, ii.	
7.	Pirogoff, St. Petersburg, 1856.	45*	Subclavian aneurism, some years.	Not noted.	None.	Forty-eight hours.	Septicemia, probably.	Guy's Hosp. Rep., xvii, 137.	
8.	Cooper, E. S., San Francisco, 1859.	40*	Double aneurism, carotid and subclavian.	Not noted.	None.	Ninth day.	Sepsis, probably.	Amer. Jour. Med. Sci., 1859, xxxviii.	Resected the sternum.
9.	Cooper, E. S., San Francisco, 1860.	40*	Subclavian aneurism.	Not noted.	.....	Thirty-fourth day.	Hemorrhage.	S. F. Med. Press, January, 1861; Guy's Hosp. Rep., xvii.	
10.	Bickersteth, E. R., Liverpool, 1868.	40*	Subclavian aneurism; 3 weeks.	Double silk, lead clamp.	Sixth day.	Seventh day.	Hemorrhage.	Medico-Chi. Trans., 1873, lvi, 129.	Lead wire passed under innominate 2 days before ligature.
11.	O'Grady, E. S., Dublin, 1873.	*	Subclavian aneurism; 3 years.	Not described.	None.	Twenty hours.	Serous effusion into cerebroventric.	Power of arteries, 3d ed., 49.	Two in. clavicle removed.
12.	Thompson, W., Dublin, 1882.	49*	Subclavian aneurism; 10 months.	Ox aorta, 3 knots.	Thirtieth and thirty-ninth days.	Forty-second day.	Hemorrhage.	Brit. Med. Jour., 1882, ii.	
13.	May, B., Birmingham, 1886.	*	Subclavian aneurism; 17 months.	Five or 6 catgut threads; 3 knots.	.....	Nineteenth day.	Hemorrhage.	Lancet, 1886, i, 1064.	
14.	Burrell, H. L., Boston, 1896.	58*	Aneurism involv. innom., carotid and subclavian; 18 months.	Two silk.	.....	.....	.....	Boston Med. and Surg. Jour., 1895, vol. 133.	Recovery. Death 104th day. Dilatation of heart, aorta and large vessels with thickening.
15.	Schumpert, P. E., Shreveport, 1898.	42†	Innominate aneurism.	Silk.	.....	Ninth day.	Cerebral anemia.	Med. Record, 1898, liv.	
16.	DeLaup, S. P., New Orleans, 1900.	58*	Double aneurism, subclavian, innom. and carotid (com.).	Two kangaroo tendons; one silk.	Twenty-first day.	Twenty-first day.	Exhaustion.	Phil. Med. Jour., Jan. 26, 1901.	Com. carotid and vertebral ligated 20th day.
17.	Buchanan, Glasgow, 1880.	40*	Subclavian aneurism; 4 months.	.....	.....	Few minutes.	Shock.	Quoted by Burrell.	See also Sheen's tables.
18.	Burns, W. B., Memphis, Tenn., 1907.	27*	Aneurism, 1st, 2d and 3d portions of subclavian artery.	One pedicle silk; granny knot.	Fourteenth, fifteenth and seventeenth days.	.....	.....	Memphis and Shelby County Med. Soc.	Recovery.

* Male. † Female.

TABLE 2.—CASES IN WHICH INNOMINATE, CAROTID AND VERTEBRAL ARTERIES WERE LIGATED FOR ANEURISM OF THE INNOMINATE, CAROTID AND SUBCLAVIAN.

No.	Name and Residence of Operator.	Age, Sex.	Condition Requiring Operation.	Arteries Ligated.	Ligature Used.	Date of Hemorrhage, if any.	Time of Death.	Cause of Death.	Place of Record.	Remarks.
1.	Smythe, A. W., New Orleans, 1864.	32*	Subclavian aneurism; 3 months.	Innominate and carotid; vertebral ligated 54 days later.	Not noted.	Fourteenth, thirty-third and fifty-first day.	.....	.....	Successful ligation in a case of subclavian aneurism, New Orleans.	Hemorrhage 51st day controlled by pouring shot into sac, finally ligating vert. on 54th day. Aneu. returned after 10 yrs., patient dying from hemor.
2.	Mott, A. B., New York, 1868.	*	Subclavian aneurism.	Innominate and carotid.	.....	.....	Twenty-third day.	Hemorrhage.	Wyeth's Essays, 1879, 163.	Sac ruptured into pleural cavity.
3.	Banks, M., New Orleans, 1883.	49*	Subclavian aneurism.	Innom. and carotid; 67 days later first port. subclav.	Kangaroo tendon; 3 knots.	Twenty-third day after last operation.	Thirty-seventh day.	Hemorrhage.	De Laup. Brit. Med. Jour., 1885, i, 230.	Death on 104th day after first lig.

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4.	Bull, New York, 1884.	....	Subclavian aneurism.	Innom., carotid, and vertebral, simultaneously.	Double catgut.	.....	Tenth day.	Thirty-third day.	Hemorrhage.	Burrell, Boston M. and S. Jour., 1895.		
5.	Durante, F., Rome, 1887.	45*	Subclavian aneurism; 2 years.	Innom., carot. and vert.	.....	Tenth day.	Sixteenth day.	Hemorrhage, hæmothorax.	Brit. Med. Jour, ii, 79.			
6.	Twyman, G. E., Sydney, 1890.	18†	Subclavian aneurism; 1 year.	Innominate and carotid.	Silk.	.....	Eighteen hours after operation.	Shock; cerebral lesion.	Lancet, 1890, i, 1332.			
7.	Coppinger, C., Dublin, 1893.	53*	Subclavian aneurism.	Innom.; com. carot. divided between ligs.	Silk.	.....	.....	.....	Lancet, 1893, ii, 327.			Recovery. Exhibited 42 days after operation.
8.	Gray, G. W., Boston, 1895.	39†	Aneu. involving innom., subclav and carotid.	Innominate; then 19 days later carotid ligated.	Three silk.	Nineteenth, thirty-second and forty-second days.	Forty-second day.	Hemorrhage, asepsis.	Boston Med. and Surg. Jour., 1897, vol. 137.			
9.	Ballance, C. A. 1902.	35*	Aneu. innom., subclav., com. carot.; 6 months.	Innominate and carotid.	Four gold beaver skin.	None.	Second day.	Clot right internal and mid. cerebral art., left hemiplegia.	Lancet, Nov. 1, 1902.			
10.	Sheen, W., Cardiff, Wales, 1904.	46*	Subclavian aneurism; 6 months.	Innom. and carotid; 1st portion subclav. 61 days later.	Floss silk stay knot.	.....	.....	.....	Ann. Surg., July, 1905.			Recovery. *
11.	Symonds, C. J., Guy's Hospital, London, 1894.	53*	Subclavo-axillary aneu.	Innominate and carotid.	Silk.	.....	.....	.....	Guy's Hosp. Rep., Nov., 1894.			Recovery.
12.	Curtis, B. F., New York, 1899.	53*	Subclavo-axillary aneu.; some months.	Innom. tied, carotid and 1st portion subclav. 101 days later.	Chromic catgut, 2 threads simultaneously, then 1 distally.	.....	.....	.....	Sheen's table, Annals Surg., July, 1905.			Recovery.
13.	Jacobson, W. H. A., London, 1890.	46*	Subclavo-axillary aneu.; 1 year.	Innominate and carotid.	.....	.....	Tenth day.	Bronchopneu.; delir.	Sheen's table.			Inner end of clavicle removed. Clavicle divided at inner and outer ends.
14.	Moynihan, B. G. A., Leeds, Eng., 1897.	31*	Subclavian aneurism.	Aneurism cleared, innominate tied with 61 chromic catgut; 61 days later innom. and carotid tied.	Four strands of catgut.	Fifty-ninth day.	One hour after 1st operation.	Collapse.	Sheen's reprint.			

Of the nine recoveries reported, counting Burrell's case, covering the first four classes, in which the innominate was actually tied, either alone or with the carotid, vertebral and subclavian, four are to be credited to the United States, two to England, one to India, one to Mexico and one to Ireland.

Of cases in the United States, one goes to New York (Curtis), one to Massachusetts (Burrell), one to Louisiana (Smythe), and one to Tennessee (Burns).

Of the attempted ligations (Class 5) one goes to Dublin (Porter, W. H.), one to New York (Hoffman), one to London (Key), one to Rio Janeiro (Peixto), and one to New Orleans (Parham). Of these cases the patients of Porter and Peixto recovered.

Out of the fifty-one times the innominate artery has been approached with the idea of securing it in a liga-

Fig. 1.—Showing relations of the innominate artery; a, innominate artery; b, subclavian artery; c, common carotid artery; d, vertebral artery; e, internal mammary artery; f, transversus scapulæ; g, thyreocervical trunk; 7-c, seventh cervical vertebra; 1-t, first thoracic vertebra.

ture, of all the classes 11, or 21.5 per cent., of the patients have recovered. Of the fifty-one cases of all classes, 21 of the patients, or 42 per cent., suffered from wound infection, and 6, or 11.6 per cent., died from shock. Exactly the same number—six—died from some cerebral lesion.

Since the beginning of the antiseptic period, in 27 per cent. of the cases the patients have shown wound infection. Wound infection is also shown in 25 per cent. of the patients classed as recoveries of the antiseptic and aseptic periods (since 1871). Out of the

TABLE 3.—Cases in Which the Innominate Artery Was Ligated for Secondary Hemorrhage, Etc.

No.	Name and Residence of Operator.	Age, Sex.	Condition Requiring Operation.	Arteries Ligated.	Ligature Used.	Date of Hemorrhage.	Time of Death.	Cause of Death.	Place of Record.	Recoveries and Remarks.
1.	Hutin, Paris, 1842.	27*	Secondary hem., injury long thoracic art. penetrating wound; 9 days.	Third port. subclav. then innom. 9 days later.	Flat ligature.	None from innom.	Twelve hours after operation.	Hemorrhage.	Lancet, 1842, vol. i, Arch. de chirurg. Fran. et Etrang.	
2.	Lynch, New York, 1867.	23	Sec. hem. from gunshot wound of int. carot. and vert.	Innominate; carotid had been lig. a month previously.	Not mentioned.	Twelfth day.	Twelfth day.	Hemorrhage.	Quoted by Burrell	
3.	Partridge, C. B., Calcutta., 1870.	*	Sec. hem. from carotid aneurism; 1½ years.	Com. carot.; 13 days later innom. tied.	Not mentioned.	Thirteenth day, from the carotid.	One and a half hours after 2d operation.	Shock.	Indian Ann. Med. Sc., xiv, 22.	
4.	Lewtas, J., India, 1889.	20*	Hem. from traumatic subclav. aneurism; 1 month.	Innominate and carotid.	Catgut.	.....	.....	.....	Brit. Med. Jour., 1889, ii, 312.	Recovery reported 43 days after operation.
5.	Harte, R. H., Philadelphia, 1897.	26*	Sec. hem. gunshot wound of neck (com. carotid).	Innom., subclav., and carotid.	Silk.	On day of second operation and 10 days previously.	A few hours.	Hemorrhage.	Ann. Surg., 1897, xxvi, 489.	
6.	Hernandez, A. J., Mexico, 1900.	...	Laceration com. carotid.	Innominate.	Not mentioned.	.....	.....	.....	Wien. med. Blätter, Aug. 30, 1900.	Recovery.

* Male. † Female.

TABLE 4.—Cases in Which Artery Ligated is Indefinite (and Reported as Innominate Ligations); Miscellaneous.

No.	Name and Residence of Operator.	Age, Sex.	Condition Requiring Operation.	Arteries Ligated.	Ligature Used.	Date of Hemorrhage.	Time of Death.	Cause of Death.	Place of Record.	Recoveries and Remarks.
1.	Norman, Bath, 1824.	*	Subclavian aneurism.	Not described.	Not mentioned.	.....	Third day.	Hemorrhage.	Guy's Hosp. Rep., xviii.	
2.	Hall, Baltimore, 1836.	52*	Subclavian aneurism; 9 months.	Not described.	Not mentioned.	At operation.	Sixth day.	Hemorrhage.	Balti. Med. and Surg. Jour. and Rev., 1833, i, 125.	Needle passed through the vessel.
3.	Bland, Sydney, 1832.	31*	Subclavian aneurism; 2 years.	Not described.	Two threads.	Seventeenth and eighteenth days.	Eighteenth day.	Hemorrhage.	Lancet, 1832, ii.	
4.	Porter, G. H., Dublin, 1867.	43*	Subclavian aneurism.	Clamp applied to innominate for 3 days.	None.	.....	Second day.	Hemorrhage.	Med. Press and Circular, 1877.	
5.	Bujalsky, St. Petersburg, 1833.	56*	Subclavo-axillary aneu.	Innominate.	Tied by tourniquet.	.....	Fifth day.	Sepsis, pus in pericard.	Sheen's tables.	
6.	Bujalsky, St. Petersburg.	...	Subclav. aneu., probably.	.....	.....	.....	Shortly after operation.	.....	Sheen's tables.	No details.
7.	Miles, London.	...	.....	Innominate.	.....	.....	Not stated.	.....	Lancet.	Sheen letter calls attention to Miles case.
8.	Annandale, T., Edinburgh, 1885.	53*	Subclavian aneurism.	Innominate, clamp used.	.....	.....	Twelfth day.	Hemorrhage, sepsis.	DeLaup and Sheen's tables.	

* Male. † Female.

TABLE 5.—Cases of Attempted Ligation, Etc.

No.	Name and Residence of Operator.	Age, Sex.	Condition Requiring Operation.	Ligature Used.	Date of Hemorrhage, if any.	Time of Death.	Cause of Death.	Place of Record.	Remarks.
1.	Porter, W. H., Dublin, 1832.	47*	Subclavian aneurism; 2½ years.	.....	.....	.....	.....	DeLaup and Sheen's tables.	Operation abandoned, could not find healthy part of vessel. Recovery.
2.	Hoffman, New York, 1839.	63*	Subclavian aneurism; 5 months.	.....	.....	.....	.....	DeLaup and Sheen's tables.	Innom. unhealthy; death in 3 months.
3.	Aston Key, London, 1844.	46†	Subclavian aneurism; 3 months.	.....	.....	.....	.....	DeLaup and Sheen's tables.	Sac large; hemorrhage and death.
4.	Peixoto, A. J., Rio Janeiro, 1851.	33*	Vascular tumor of ear—"bleeder."	.....	.....	.....	.....	DeLaup and Sheen's tables.	Ligature passed but not tied. Recovery.
5.	Parham, F. W., New Orleans, 1894.	48*	Cervical aneurism involving innom.	.....	.....	Seventeen hours.	Shock.	DeLaup and Sheen's tables.	Artery exposed, not tied.

* Male. † Female.

eleven recoveries of all classes, 36 per cent. of the patients were infected.

AUTHOR'S CASE.

Patient.—J. H., colored, aged 27, was admitted to the City Hospital, Aug. 6, 1907.

History.—Father living and in good health. Mother died at age of 35 from hemorrhage of the lungs (?). One brother died at the age of 18, cause of death unknown; one sister living, aged 25, in good health. Grandparents all dead. The patient has supernumerary toes and had six fingers on each hand, but the extra ones were removed in infancy. This peculiarity is a family trait. The patient had whooping cough at 3; measles and mumps at 6, and pneumonia at 20, very severely. He had gonorrhea seven years ago, with a bubo, which was lanced five years ago. He had a sore on his penis, also, lasting two months, with "kernels" in the groins and neck. Since that time he had had several attacks of rheumatism in arms and legs, with some swelling of legs. He had pain and a slight swelling over the breast bone

Fig. 2.—Showing the aneurismal sac (a) and the point of ligation (b).

eighteen months ago. Good deal of hoarseness; not much sore-throat. About one year ago he noticed a swelling above the right collar-bone. He painted this with iodin but the swelling continued to grow, and finally, five months ago, the pressure of the growth began to produce pain in the shoulder, both in the supra- and infraspinous regions and down the right arm. For a month, prior to entering the hospital, he had not been able to sleep at night, or to get any satisfactory rest at all, day or night. He worked during the day, because he seemed to suffer less pain when working, than when idle. The arm and hand were edematous and numbness in the hand was complained of.

Operation.—August 9 the patient was operated on. I was assisted in the operation by Dr. Robin Mason. Ether was administered by Dr. Albert Vaughn. The Valentine Mott operation was done. One ligature of the largest size braided silk (pedicle) was tied in a "granny" knot around the innominate artery about one inch proximal to its bifurcation into the common carotid and subclavian. The ligature was drawn just tight enough to approximate the walls of the vessel and not tight enough to crush either of its coats. Pulsation in the aneurism ceased at once and did not return. The patient entered the operating room at 3 p. m., and at 4:20 p. m. he was returned to his bed; pulse 129, respiration 30. At 5:20 p. m. he was very restless, pulse 120; he received codein sulphate gr. ½ and morphin gr. ⅛. At 6 p. m. his pulse was 110. At 8:30 p. m. he was given morphin gr. ¼ and crushed ice. At 10 p. m. patient was sleeping; 10:50 p. m. he was awake and restless and was given morphin gr. ¼. At 11 p. m. he was asleep. At 2 a. m. and 4 a. m. he was given ice water. At 7:30 a. m. patient was asleep.

August 10: At noon his temperature was 100 F., pulse 90; given a light meal at 3 p. m. temperature 100 F., pulse 80. At 6 p. m. he was given a light meal.

August 11: At 3 a. m. his temperature was 99.4 F., pulse 96; rested very well. He reported that he got up during the night to get water. At 9 a. m. the wound was dressed. The swelling (edema) was gone from the hand; numbness was disappearing; pain in shoulder apparently gone. At noon his temperature was 100.6 F., pulse 116. He was put on regular diet. At 3 p. m. his temperature was 99.6 F., pulse 90. The patient had a good night.

August 12: At 9 a. m. his temperature was 100.4 F., pulse 104.

August 13: Patient passed a good night; had one bowel movement. At 9 a. m. his temperature was 100 F., pulse 80; the wound was suppurating and the upper line of incision was broken down. A 1 to 1,000 bichlorid of mercury solution was applied in moist hot pack, at 6:30 p. m. his temperature was 104.4 F., pulse 80. Milk was given. He was restless and complained of his head.

August 14: He had a very good night. At 9 a. m. his temperature was 100 F., pulse 86. The wound was dressed, counter openings made and drainage wicks placed; a hot bichlorid of mercury 1/2000 pack was applied. At 6 p. m. his temperature was 101.4 F., pulse 108. Ate both dinner and supper.

August 15: Patient passed an uncomfortable night. At noon his temperature was 101.6, pulse 96. He was given magnesium sulphate 1 oz. and morphin ¼ gr., codein ½ gr. At 6 p. m. his temperature was 101.6 F., pulse 86. Boric solution was applied on pack. Took both dinner and supper.

August 16: He had a good night. His temperature and pulse were unchanged.

August 17: Patient had a comfortable night; two bowel movements. His temperature was 97.2 F., pulse 98. At 9 a. m. the wound was dressed. At 3 p. m., his temperature was 99 F., pulse 98 F.

August 18: Passed a splendid night. At 9 a. m. the wound was dressed; his temperature was 99.6 F., pulse 80.

August 19: Patient had a very good night. Wound was dressed at 9 a. m.; his temperature was 99 F., pulse 90. At 3 p. m. his temperature was 99.6 F., pulse 72. Had a bowel movement.

August 20: He had a splendid night. At 8:30 a. m. the wound was dressed. At 3 p. m. his temperature was 99.6 F., pulse 108.

August 21: At 9 a. m. the patient's temperature was 97.8 F., pulse 82. At 3 p. m., 99.6 F., pulse 108. He had two bowel movements.

August 22 (fourteenth day): Patient slept well. At 9 a. m. the wound was dressed; at 3 p. m. his temperature was 99.6 F., pulse 104. He had two bowel movements. During the night while he had a normal temperature and pulse he was very uncomfortable. There was hemorrhage from the wound which was controlled with cotton pack and by tightening dressing. He was given morphin ¼ gr.

August 23: At 9 a. m. his temperature was 98.4 F., pulse 96; the wound was dressed. At 3 p. m. his temperature was 101 F., pulse 94; ate three meals.

August 24 (sixteenth day): He complained of pain in head during night. His temperature was 99.4 F., pulse 90. At noon his temperature was 98.4 F., pulse 98; at 3 p. m. 100.2 F., pulse 97. At 3:30 p. m. there was a small hemorrhage from the wound.

August 25.—Patient had slept well. Temperature 100 at 5 a. m. At 9 a. m. temperature was 102.4 F., pulse 108. At 11 a. m. the wound was dressed. At 3 p. m. his temperature was 101.6 F., pulse 98. Patient ate three meals.

August 26: There was a small hemorrhage from the wound at 7 a. m. At 9 a. m. his temperature was 100.2 F., pulse 104. In the afternoon it was the same.

August 27: He had a good night. At 9 a. m. his temperature was 99.8 F., pulse 102; at 3 p. m. 100 F., pulse 101. He had two bowel movements. Up to this date the patient had been getting increasing doses of a saturated solution of potassium of iodid up to 88 drops six times in twenty-four hours; he had now reached the point of iodism.

August 28: Patient's temperature reached normal.

Nothing of consequence occurred until September 30 when the ligature was recovered from the wound while it was being dressed.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CARREL, GUTHRIE, MATAS AND BURNS.

DR. J. E. SWEET, Philadelphia: I know of no subject in medicine or biology which has been the direct incentive of more valuable laboratory work than this subject of blood-vessel surgery. The inspiration to research work is like the root of a plant, one root feeding many branches, which spread out in all directions. Beginning with the first work in blood-vessel surgery, the first transfusion in 1657, and following the history of the subject through the years, we come, in the earliest period of the laboratory, to the magnificent work of Landois, the direct result of blood-vessel surgery, the immediate stimulus of all that recent work represented by a new vocabulary of terms, from "agglutinins" to "hormones," and by the new methods of research, from those of hemolysis to that highest development of complex laboratory analysis, the determination of a condition of infection by the method of complement deviation. Work of the kind described to-day, should, I think, be divided in two groups, a group in which the results are immediate—temporary physiologic experiments—and the group comprising the transplantation of organs, vessels and so forth.

I do not agree with the speakers of to-day in thinking that the suture method is the best for the temporary work, for example, the transplantation of the head in order to study the cerebral functions from the laboratory standpoint. The best method for work of this type is to take a small tube of the diameter of the blood vessel, draw the cut end of the vessel through the tube and turn it back wrong side out over the tube and fasten it with a ligature. The end of the vessel which is to be joined is drawn over this cuff and fastened with a ligature. We then have a tube lined with intima inside and out; the cut edges of the vessel are outside the blood stream; there can be no thrombosis, and the whole process can be performed in less than two minutes. I have in that way transposed the pancreas, the time elapsing from the moment of severing the pancreatic vessels until the blood was again flowing through the vessels, being less than two minutes.

The suture method for permanent transplantations seems to me perfect; nothing can be added to the description we have heard. Several writers on the subject have spoken of the necessity of "perfect asepsis." To my mind there is no such thing as perfect asepsis because any sepsis is perfect asepsis. I object to this term because I find that young surgeons gain from the use of the terms "asepsis," "better asepsis," and "perfect asepsis," the idea that good surgery can be done without asepsis; surgeons must enforce the idea that the word "asepsis" means "without sepsis," is absolute and suffers no qualification, and that aseptic surgery is the only permissible ideal.

DR. J. F. BINNIE, Kansas City, Mo.: Every one is familar with the old demonstration of the circulation in the mesentery of the frog. If, during the examination the mesentery is permitted to become dry, the phenomena of inflammation appears and the circulation soon ceases. If the tissues are kept warm and moist the circulation continues for a long time. This old observation gives the key to success in arterial surgery. The basic law of reconstructive arterial surgery is, "keep the arterial tissues moist and unirritated." Carrel fulfils this law by washing away clots, etc., with salt, or, better, with Ringer's solution, and by appying sterile vaselin to the tissues and to the sutures which he uses. Hertzler in his many experiments on arterial suture failed because he did not keep the tissues moist and prevent his sutures from irritating. An aneurism (apart from a traumatic one) develops only in a diseased vessel and then either at the spot where the disease is greatest or where the strain is greatest. If we can repair this weakened spot so that it becomes as strong as the rest of the vessel (weak though it may be) we have gained much. It is only after cutting into the aneurismal sac that we can judge whether sufficient of the arterial wall, both in quantity and quality, remains to permit an attempt at reconstruction of the vessel. In true fusiform aneurisms reconstruction is manifestly impossible. In some sacciform aneurisms, whether with one or two orifices, undoubtedly the vessel may be restored to a good imitation of integrity. If the conditions found after the sac is opened do not warrant an attempt at reconstruction, Matas' obliterative operation should be performed. This operation is usually easy and its great worth has been absolutely proved. In the obliterative operation no attempt should be made to keep the tissues moist by smearing with vaselin. Catgut is the suture material of choice. In the reconstructive operation the law demands that the tissues be kept moist with some substance like vaselin and that the sutures closing the communication between the artery and the sac be of fine vaselinized silk or hemp. After the orifice of communication is closed the rest of the sac may be closed as in the obliterating operation.

DR. DEAN D. LEWIS, Chicago: Dr. Burns' case, apparently, was an ideal one for the operation of ligation of the innominate artery for the cure of a subclavian aneurism. In most cases in which the operation has been attempted the aneurismal dilatation involved the innominate artery itself rendering the operation difficult and the remote results uncertain. In 1887 Rosenstirn collected reports of thirty-eight cases in which a simultaneous distal ligation of the common carotid and subclavian arteries had been undertaken for the cure of aneurism involving the innominate artery. Six of these operations were performed before the antiseptic era. Two of the six patients recovered, four died. Thirty-two operations were performed under careful antiseptic and aseptic precautions. Fourteen of these recovered, five were improved, five were not benefited and eight died. Simultaneous distal ligation of the arteries gives a much higher percentage of recoveries than proximal ligation. The term recovery is employed in a relative sense, being applied to those cases in which the symptoms have not recurred for one year and a half and the patient has been able to assume a moderate amount of light work. In many of the cases in which proximal ligation has been performed it has been necessary to perform distal ligation later. It would seem better, therefore, to attempt first distal ligation which is not attended by such a high mortality and to resort later to proximal ligation if the resuls were not satisfactory. In proximal ligation it is necessary to have a free exposure of the sac and this can be secured by dividing sagittally the manubrium down to the lower border of the first rib or slightly lower and retracting well the divided portions making an incision outward to the border of the first rib.

DR. J. A. DANA, New Orleans: I have had an experience of seven cases in which I perform the Matas operation, and I will call attention to a few points that struck me. First and most important is the ease and the simplicity of the operation. All that is necessary is to get into the sac after securing hemostasis of the part by constriction of the limb above, or compression or temporary ligation of the main vessel above; and then to suture the openings that convey blood to and from that sac. Usually the sac has so thinned the overlying structures by stretching and pressure that it is merely a matter of going through the skin and fascia and

possibly a few muscular fibers. There has been much misunderstanding in the profession as to the nature of the Matas operation. It means incision of the sac after preliminary arrest of the circulation of the part, and direct suture of the openings within the sac. After doing that, if we find a perfectly clean sac, lined entirely with serous membrane, we close it completely without drainage.

My first two cases were, one femoral and the other popliteal; rupture into the subcutaneous tissues had occurred before I got at them. In such cases one should drain. In the seven cases I had only one really spindle-shaped aneurism. The other six were practically sacciform. Usually the ends of the vessel project into the cavity. The propriety of doing the more complete operation—that is, of preserving the continuity of the artery—is still, I think, a question. In the purely sacciform aneurism, particularly the traumatic, in which there is but one opening in the side of the vessel that leads into the aneurism, one can suture that opening with ease. But where there are two openings some distance apart, the propriety and safety of reconstructing the missing portion of the vessel and maintaining its continuity, becomes a serious question. I have had two cases in which I did this and in one case I think I would have been successful if I had had more experience. Twenty-eight days after I operated I noticed that the aneurism had recurred and when I reopened the sac and dissected the parts loose again I found that four-fifths of the reconstructed vessel was strong and that it had yielded in its lower fifth so that if that portion had been as well sutured and as strong as the rest, I believe that that case would have been successful. In the other case there was a fatal termination and it has taught me never to do the more complete operation unless I can watch my patient for some time afterward. The patient, a negro farm hand, left the hospital during convalescence from a reconstructive operation on an ileofemoral aneurism because he became frightened at the entrance of a supposed case of smallpox, and went to work immediately. He had a recurrence, refused to return for treatment and died from rupture of the aneurism shortly after. If he had remained or returned I would have closed the orifices in a second operation as I did in my previous case. In this case I had to apply a temporary ligature on the common iliac to control hemorrhage.

DR. D. W. STEINER, Lima, Ohio: Some years ago I made an observation with reference to the clotting of blood, which was just now recalled by Dr. Guthrie's statement he experienced trouble in this regard. With Dr. Sewall in the Physiological Laboratory of the University of Michigan, a study in blood pressure was made. We operated chiefly on dogs and rabbits and experienced great difficulty in keeping the blood from clotting in the canulæ. It was accidentally discovered that with animals that were not fed the day of the observation, there was little clotting and if animals were not fed the day before, there was no clotting even though the study was continued for hours. This would show that in the transfusion of blood a starved animal should be selected.

DR. GEORGE W. CRILE, Cleveland, Ohio: I wish to speak of the practical application of the work of Carrel and Guthrie in certain surgical procedures. Among the transfusions we have done, the first was accomplished by anastomosing the radial artery with the median basilic vein. We found the method satisfactory so long as the technic can be carried out, one will not have any difficulty. In a case of cancer of the breast, in order to make a complete excision of the structures involved in the axilla I was obliged to resect about one inch of the axillary artery and made an end-to-end anastomosis according to the method of Carrel and Guthrie. The artery united readily and convalescence was in no way hindered. In a number of instances I have sutured rents in the veins, which were made at the time of operation for removal of large malignant tumors. I have performed the Matas operation twice, once successfully in the case of an aneurism of the femoral artery. A case of aneurism of the abdominal artery was operated on unsuccessfully.

DR. ALEXIS CARREL, New York: Surgery of the blood vessels is at its beginning and the question is really almost entirely an open one, at least as far as the application of laboratory experiments to clinical work is concerned. The experiments must be carried out with reference to their practical applications. Suture and transplantation of the blood vessels have been done successfully on animals. In transplantation of blood vessels, however, it is necessary to make a distinction between arteries and veins, and between homoplastic and heteroplastic grafts. After a great many experiments it appears that the transplantation of a fresh piece of artery gives constant, positive results. It is possible that a large aneurism can be extirpated and replaced by a segment of an artery or of a vein. This has been tried in Germany by Lesser, who transplanted a piece of vein after removal of an aneurism. In the applications of the transplantation of vessels or organs to clinical surgery, it would be necessary to modify in some measure the methods which are successful on animals. The anatomic and physiologic conditions of vessels belonging to different species of animals are different. The details of the technic must be exactly adapted to these differences. To apply indiscriminately to man methods which have been even very successful on animals, would be certainly dangerous.

DR. WILLIAM BRITT BURNS, Memphis, Tenn.: Dr. Lewis spoke of the removal of the sternum. I found that that was done in one instance. Resection of the clavicle was done in four cases, but usually the bifurcation of the innominate is high enough up to be reached by the Valentin Mott incision with the head thrown back and arm down. The patient I presented had hemorrhages on the fourteenth, sixteenth, and seventeenth days. The wound suppurated, probably because of the very hot weather, the perspiration running down his face and chin into the dressing, which, I think, he displaced by pulling. The ligature was recovered on the twenty-first day. The collateral circulation is through the subscapular and the aortic intercostals.

DR. RUDOLPH MATAS, New Orleans: Catgut if used in the crude state would be a defective material for use in vascular surgery. Ordinary catgut sterilized by heat would never do, but hardened chromic gut does very well, as we have proved in all cases in which it has been used. In obstructive and obliterative cases we should adopt the principles of Carrel's technic, but in all obliterative cases we would use chromic gut, No. 1, for closure of the opening and obliteration of the sac.

INFANTILE PARALYSIS.

A STUDY OF 635 CASES FROM THE CHILDREN'S HOSPITAL, BOSTON, WITH ESPECIAL REFERENCE TO TREATMENT.*

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BOSTON.

The following paper deals with an analysis of 635 consecutive unselected cases of infantile paralysis seen at the Orthopedic Out-Patient Department of the Childrens' Hospital, Boston, between Jan. 1, 1897, and Jan. 1, 1908. We are indebted to the Orthopedic Department of the Hospital for permission to report the cases, and to the neurologist for the privilege of consulting the records of that department in cases common to both clinics. The investigation was begun eighteen months ago, and so far as possible the cases have been examined personally by one of us.

FUNDAMENTAL ANATOMIC CONSIDERATIONS.

We are dealing with a lesion of the motor cells of the anterior horns of the spinal cord, and, as it is obvious from the pathology that the harmful agent reaches these cells through the blood current, the relation of the arterial supply to the motor cells becomes of importance.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

*Because of lack of space, the article is here abbreviated. The complete article appears in the Transactions of the Section and in the author's reprints.

Spinal Motor Cells.—The spinal motor cells lie in spindle-shaped bundles in the anterior horns of the spinal cord, being chiefly located in the cervical and lumbar enlargements. The greatest extent of these groups is in the length of the spine, one group frequently reaching through two or three spinal segments, while it overlaps other groups lying above and below it. Whether such group represents an anatomic set of muscles or whether the cells represent a functional grouping, as held by Lapinsky, is not settled, but in any event the relations of the cells to others in the same group and to those of other groups is most complex. One center will send impulses to two or more muscles, and, on the other hand, one muscle will receive motor impulses from more than one group. This matter of the complicated origin of motor impulses becomes of great importance in considering treatment.

Blood Supply of Spinal Cord.—The blood supply of the spinal cord is derived chiefly from one anterior and two posterior spinal arteries. This anterior artery runs the length of the cord in the anterior fissure and is the chief supply of the anterior cornua. It is with the distribution of the blood supplied by the anterior spinal artery that we are chiefly concerned. From this anterior spinal artery there arise two lateral horizontal branches, one to each side, which enter the cord at different levels, about 200 in number. These are the central or sulco-commisural spinal arteries. Entering the anterior cornua, they terminate in a network after subdividing into various branches. Each of these central arteries has ascending and descending branches, covering an area in the length of the cord of from 1.5 to 2 cm. These branches are terminal arteries and do not anastomose with each other. Although they supply chiefly the anterior horns, there are branches to the bordering white matter and one posterior branch.

The terminal twigs of the central arteries do not individually supply each an especial group of motor cells in the anterior horns, but are distributed apparently without reference to the cell groups so that each cell group gets its blood supply from several branches of one central artery or from those of more than one central artery. The irregular distribution of destruction of foci in infantile paralysis is thus explained, being dependent on the fact that the lesion follows the blood course and is determined by the distribution of the arteries affected.

The main fact is that, on the whole, the groups of motor cells run in the length of the cord and have their associations in this direction, and that the blood supply is mainly horizontal. Hence, unless the lesion is very extensive, some cells in a group are likely to escape destruction. *The utilization of such remaining cells in partly destroyed groups becomes, therefore, one of the most important objects of treatment.*

ETIOLOGY.[1]

Bacteriology.—Most examinations of the fluid obtained by lumbar puncture by observers all over the world have been negative. In about thirty cases organisms have been reported as present in the last ten years, but these organisms have differed, the most constant finding being the report of fifteen cases by Geirsvold and Harbitz and Scheele,[2] where the same diplococcus was found.

Experimental Production.—Paralysis of a sudden type frequently occurs in laboratory animals, especially in young ones. Lesion of the cells in the anterior horns of the cord has been found in experimental paralysis caused by the injection of staphylococci, streptococci, colon bacilli, pyocyaneus, and other organisms in rabbits. A selective action of certain poisons for the anterior spinal cells is thus shown, and the same is true of some of the metallic poisons, such as lead and arsenic.

Epidemic Character.[3]—That the disease occurs in epidemic form is well recognized, distinct epidemics having been reported from France, Italy, Germany, Austria, Norway, Sweden, Australia and in the United States from California, Alabama, Massachusetts, Maine, New York and Vermont. New York City in the summer of 1907 experienced the most severe epidemic ever yet reported anywhere.

Contagion.—The comparatively frequent occurrence of more than one case in a family suggests the possibly contagious nature of the disease or infection from a common source.

Traumatism.—A history of trauma was given in 47 of our series where a history was obtained, and occurring in so large a proportion of the cases it seemed worthy of notice. In 32 cases there was given a history of accident followed almost immediately by paralysis, as shown in Table 1.

TABLE 1.

	No. of Cases.
A.—Slight accidents:	
Slight fall	20
Fall from cradle	3
Fall from chair	1
Fall from swing	1
Fall from carriage	3
Fall from automobile	1
Fall while walking, skating or playing	5
Dropped by nurse	1
Falling under other children	1
B.—More serious accidents:	
Fall from a third-story window	1
Fall from first story window	1
Stone fell on the head	1
Gate fell on the foot	1
Fracture of tibia	1
Total	41

In all of these cases the paralysis followed immediately or so shortly after the accident as to suggest to the parent's mind the relation of cause and effect.

In a second series of six cases (Table 2) the paralysis did not follow the accident immediately, but came on at an interval of some days.

TABLE 2.

Fall from chair	Paralysis a few days later
Fall from carriage	Paralysis a few days later
Fall from bed	Paralysis 7 days later
Fall	Paralysis 3 weeks later
"Injury"	Paralysis 1 week later
Sprain of ankle	Paralysis later

Of these 47 cases, 16 were rejected on the ground that the history was not sufficiently definite as to the traumatism, leaving 31 cases where a clearly described accident or fall preceded the paralysis immediately or at an interval of a few days.

We do not consider that our cases, suggestive as they are, establish the traumatic origin of anterior poliomyelitis, but that so large a number give a clear history of trauma preceding the paralysis we consider worthy of serious consideration in formulating the etiology. Unless one is disposed to dismiss this evidence as necessarily untrustworthy, which seems hardly justifiable, one of two suppositions seems likely: (1) Either trauma may be regarded as predisposing to infection of the spinal cord, or (2) trauma causes a disease so closely resembling anterior poliomyelitis as to be indistinguish-

1. Lovett, R. W.: General Review of Etiology. Boston Med. and Surg. Jour., July 30, 1908; Trans. Massachusetts Med. Soc. 1908.
2. THE JOURNAL A. M. A., Jan. 25, 1908.
3. Holt and Bartlett: Am. Jour. Med. Sc., May, 1908.

able from it. In 234 cases of infantile paralysis reported to the State Board of Health of Massachusetts as occurring in the state in 1907, there were 35 authentic traumatic histories given by the family physician in attendance at the time after rejecting all questionable ones.[1]

The association of trauma and anterior poliomyelitis has not been wholly overlooked in literature. A case is reported by Borckhardt[4] where a child, 1 year old, was scalded in the face by boiling water. Vomiting and fever followed in a few days with paralysis, and four days later death ensued, the autopsy showing the characteristic changes of anterior poliomyelitis. The other cases reported are mostly or wholly those of adults, the class of accidents described being practically identical with those in this series. The cases are as follows: von Leyden,[5] 2 cases; Stark,[6] Perrin,[7] Meyer,[8] Flatley,[9] and Bullen,[10] one case each.

Unusual Onset.—In the analysis of the onset of our cases there separated itself a group of cases where the onset was atypical or associated with other diseases. In six cases the paralysis appeared slowly and gradually, without febrile attack. In eight cases the onset of the usual character followed exposure to cold. In one case the disease manifested itself on the day after the child had been jumping rope to excess. In thirty-five cases it was said to have followed or to have been associated with the diseases enumerated in Table 3.

TABLE 3.

	No. of Cases.
Bronchitis	3
Bilious attack	1
Teething	2
Nephritis	1
Typhoid fever	5
Scarlet fever	3
Measles	3
Pneumonia	2
Intestinal diarrhœa	8
Rheumatism	5
Diphtheria	2

The diagnosis of these cases is, of course, doubtful, as the original onset may have been mistaken for any of these diseases, and there is no means of knowing whether this diagnosis was made by the parents or by a competent physician.

Two further subdivisions of the general group deserve special mention. Two patients became paralyzed during an attack of boils or abscesses, which is of much interest in connection with what has been said in the bacteriology about experimental septic infection, and one patient was paralyzed in the hospital ward during recovery from an operation for appendicitis. Twenty-three cases were said to have followed cerebrospinal meningitis. It is fair to assume that the majority of these cases of so-called meningitis were merely the routine onset of the disease of rather severe character, but in six cases the character of the meningitis was established by hospital observation and the subject has already been discussed by Dr. W. N. Bullard, neurologist to the hospital.

Summary of Etiologic Evidence.—The disease is generally believed to be of infectious origin, but direct bacteriologic proof is as yet absent. The character of the onset, the epidemic distribution, the apparent contagiousness, and the experimental production of paralysis in animals all point in this direction. The fact that the disease selects by preference children in the first dentition and prevails in the summer and early fall offers a close analogy to the gastrointestinal disease and suggests a possible source of infection in the intestinal tract, possibly from some bacillus contained in milk. It may be that such a bacillus liberates a toxin which is the harmful agent and disappears.

With the evidence offered by our cases we can not be sure that the disease represents infection by one specific organism nor that it is always of infectious origin for it must be remembered that the clinical picture may represent only the reaction of the spinal cord to one of several causes, such as pyogenic organisms, the results of exposure to cold, traumatism, etc. We have not yet sufficient evidence to say whether we are dealing with a specific infectious disease or with a disease of more than one origin.

Sex.—Of the 635 patients, 334 were boys and 301 were girls.

Age.—Table 4 shows the age at onset.

TABLE 4.

Age.	No. of Cases.
Early	8
Under six months	15
6-12 months	55
1 year (second year of life)	150
2 years	128
3 years	65
4 years	40
5 years	36
6 years	18
7 years	13
8 years	8
9 years	7
10 years	6
11 years	4
12 years	1
13 years	1
Total	555
Not noted	80

Season of Onset.—Most of the cases where the date of onset was noted occurred during the spring and autumn months, as shown in Table 5.

TABLE 5.

January	8	July	36	Spring	8
February	4	August	43	Summer	17
March	5	September	47	Autumn	14
April	5	October	39	Winter	7
May	6	November	29		
June	13	December	4		

Relation of Severity of Onset to Paralysis.—The character of the onset was tabulated with regard to the degree of paralysis following, to see what, if any, relation existed.

The onset was classed as severe when it lasted over a week, or was accompanied by unconsciousness, delirium or convulsions. It was classed as moderate when it was from a day or two to a week in duration, when the symptoms were not alarming and when the fever was moderate. It was classed as slight when the child was affected by a slight febrile attack for one or two days, when the temperature was but little elevated and the illness apparently trifling.

The paralysis was classed as severe when it was complete in one limb, when it involved more than one limb to any serious degree, or when walking on the paralyzed leg was impossible. It was classed as moderate when important groups of muscles were affected enough to make the child seriously lame, when marked deformity was present, or when it was the cause of moderate disability. It was classed as slight when only one muscle or an unimportant group was affected, when the limb was merely weak, or when serious lameness and dis-

4. Arch. de méd. des enf., October, 1902, p. 608.
5. Arch. f. Psychiat., 1876, vi., 271.
6. Neurol. Centralbl., 1904, xxiii, 14.
7. Arch. de méd. des enf., October, 1902, p. 608.
8. München. med. Wchnschr., 1901, No. 5.
9. Am. Med., 1904, viii, 956.
10. Jour. Ment. Sc., 1892, xxxviii, 71.

ability were absent. Arranged in this way, the results were as shown in Table 6.

TABLE 6.

Character of Onset.	No. of Cases.	Paralysis. Severe.	Moderate.	Slight.
Severe	98	51	28	19
Moderate	84	25	44	15
Slight	62	11	28	23
No attack at onset	31	2	10	79

From this it appears that a severe onset, as defined above, is more likely to be followed by severe paralysis than by any other type, and that slight paralysis is unlikely (19 in 88). A moderate attack is most often followed by moderate paralysis, with a greater tendency to a severe than to a slight form. A slight attack shows about the same tendency to be followed by moderate or slight paralysis (11 severe cases among 62). Cases in which no onset is noted are most often followed by slight or moderate paralysis with little tendency to the severe type. The same is true of cases where the affection is attributed to traumatism.

The Distribution of the Paralysis in 628 cases is shown in Table 7. (For comparison the composite group generally quoted is reproduced at the right of the table.)

TABLE 7.

	Author's Cases.	Duchene; Seeligmuller; Sinkler; Starr.
Both legs	130	184
Right leg	216	134
Left leg	239	133
Right arm	5	30
Left arm	5	23
Both arms alone	0	9
All four extremities	3	51
Arm and leg, same side	15	48
Arm and leg, opposite side	7	10
One arm, both legs	2	15
Abdomen with other paralysis	6	

Our figures show paralysis of one leg to be nearly four times as common as paralysis of both legs, whereas the other figures show it to be twice as common; both sets of figures show paralysis of the arm and leg of the same side to be more common than crossed paralysis. Paralysis of the abdominal muscles was recorded as present in six of our cases and probably was overlooked in the examination of others.

Affection of Individual Muscles of the Leg.—Four hundred and seventy-eight cases where the data were sufficient were tabulated as to the frequency of affection of the individual muscles in paralysis of the leg. The examination was not made by electricity, but by ascertaining whether or not the functions of a certain muscle or group of muscles could be performed in response to voluntary effort. For example, the patient was told and shown how to abduct the foot; when the motion was being attempted the finger was placed on the peroneal tendons. If the motion was properly performed, the muscle was classed as "normal"; if some contractile power was present, but if motion was imperfect, it was classed as "weak"; if no power of contraction existed it was classed as "paralyzed." For purposes of tabulation the muscles in the lower leg were divided into groups as outlined in Table 8.

TABLE 8.

Anterior	Extensor longus digitorum.	Posterior	Gastrocnemius.
	Extensor proprius hallucis.		Flexor longus digitorum.
			Flexor longus hallucis.
Internal	Tibialis anticus.	External	Peroneus longus.
	Tibialis posticus.		Peroneus brevis.

The number of cases in which the different groups of the lower leg were affected, no case being entered in two groups, is shown in Table 9.

TABLE 9.

Anterior	92	Anterior, external and internal	18
Internal	40	Posterior and internal	34
Posterior	45	Posterior and external	7
External	31	Posterior, internal and external	8
Anterior and internal	29	Tibialis anticus	95
Anterior and external	27		
Anterior, internal and posterior	14		

The chief practical lesson to be drawn from this analysis is that the internal muscles are affected more frequently than the external, and the anterior more often than the posterior. Of combinations into which the internal muscles entered, there were 238 cases of paralysis against 91 for the external muscles. In the same way there were 180 such combinations in which the anterior entered against 108 for the posterior. The quadriceps muscle of the thigh was affected alone or in combination with muscles of the lower leg, not counting cases of complete paralysis, in 305 legs, being the muscle most frequently affected in either thigh or calf. The tibialis anticus and anterior muscles of the lower leg came next in frequency, and the short toe flexors were the least likely of all to be affected, frequently persisting in legs otherwise wholly disabled.

The anterior muscles of the thigh are affected much more frequently than the posterior hamstring muscles. When only one hamstring muscle is affected it is more often the internal than the external. The sartorius muscle frequently escapes when the quadriceps femoris is paralyzed, and we have never found the sartorius muscle paralyzed alone. The motor center for the sartorius is given by Edinger as one segment higher than that of the quadriceps.[11] Except in cases of extensive thigh paralysis the sartorius muscle is likely to be found intact, a matter of some importance in the question of treatment, as it may be substituted by operation for the quadriceps.

As to the relative frequency of the affection of internal and external thigh rotators, the fact that the psoas and sartorius muscles frequently escape, makes observation of this somewhat inaccurate, for the reason that the latter act as rotators. Therefore, although our figures apparently show a more frequent paralysis of the internal than of the external rotators, and thus confirm general clinical observation, we regard it rather as indicating that the muscular balance was disturbed in that direction than that especial muscles were paralyzed. Involvement of the adductor thigh muscles is far more common than that of the abductor muscles.

Complete Paralysis.—There were 95 instances of complete paralysis of the thigh on one or both sides; 37 cases were recorded as affecting only one side. In 34 of these the paralysis was also complete in the calf of that leg. The right arm was involved once, and the abdominal muscles twice in this group. Fifty-eight cases showed complete paralysis of the lower extremity on one side and some involvement of the other. In 26 of these the paralysis was complete in both thighs and both calves. In 31 cases the paralysis was not complete on both sides, in 10 affecting only the quadriceps of the least affected side. In one case there was no note of the muscles affected. Both arms were paralyzed in 2 cases, one arm in 3 cases, the hip was dislocated in 2 cases, and the abdominal muscles paralyzed twice in this group.

Paralysis of the Arm.—Paralysis of the upper arm was much more frequent than paralysis of the forearm.

11. Bau der nervösen Centralorgane, Leipsic, 1896.

the deltoid apparently suffering most frequently, often in connection with the biceps, triceps, or scapular muscles, or with all of them. Paralysis of the forearm was comparatively uncommon.

In general, the paralysis was more often symmetrical than asymmetrical, roughly speaking, when both sides were affected. In complete paralysis of one leg it has been seen that complete or severe paralysis of the other side existed in nearly two-thirds of the cases (58 double to 37 single). When the paralysis was partial in one leg and the other was affected, the paralysis in the second leg was more likely to be external than internal if the paralysis of the first leg was external.

Deformities.—These are largely, if not wholly, unnecessary, and are of two kinds—(a) static deformities, resulting from superincumbent weight coming on structures imperfectly supported by the paralyzed or weakened muscles or by the weight of some part dragging and stretching the structures; such are valgus deformity of the foot, hyperextension of the knee, dislocation of the hip, scoliosis, dislocation of the shoulder, and some cases of talipes equinus.

The second class of deformities (b) are to be classed as muscular and result from the action of muscles whose antagonists are paralyzed or weakened. These unopposed muscles cause distortions of one or more joints by their continued pull, which is not antagonized by their paralyzed or weakened opponents, a proper muscular balance being required for joint equilibrium. Such deformities are equinus, varus and calcaneus deformities of the foot and their combinations with those cases of valgus caused by paralysis of the tibials, one or both, flexion deformity of the knee and hip, and cases of scoliosis where the muscles of one side of the spine are paralyzed or weakened. These cases are in all instances accompanied by muscular contractions on the shortened side.

It can be predicted in advance in most instances what a definite muscular paralysis will produce in the way of deformity. For example, in a flail leg unable to bear weight the constant plantar flexion of the foot will induce talipes equinus; if the patient can bear weight on a generally weakened leg a valgus will result from improper support of the foot from the tibial muscles. If the anterior muscles are paralyzed, an equinus deformity will ensue with contraction of the tendo Achillis. If the posterior muscles are paralyzed, the patient will walk on his heel and a calcaneus deformity be present.

From the study of our cases we have formulated the following table of deformities (Table 10) of the foot and their causes:

TABLE 10.

Deformity.	Resulting from paralysis of.
Varus	peronei.
Valgus	anterior tibial. posterior tibial. both tibials. flexor longus hallucis. whole leg (weakened). complete paralysis.
Equinus	anterior muscles, paralyzed or weak. complete paralysis (from dangling).
Equino varus	anterior muscles. (with persistence of flexor longus hallucis). anterior and external group. paralysis apparently complete (probably toe flexors remaining).
Equino valgus	anterior and internal muscles. anterior muscles and weight bearing.
Calcaneus	posterior muscles.
Calcaneo valgus	posterior muscles and one or both tibials.

TREATMENT.

The matter of treatment will be discussed only in general terms, for no tabulation of results in so large and varied a group of cases would be practicable or of great value.

Stage of Onset.—The stage of onset represents an acute hematogenous myelitis. Quiet in bed is essential, and beyond this it is doubtful if much is accomplished by the administration of ergot and similar drugs or by blisters or other counter irritants applied to the back. As there is a possibility that the absorption of toxins from the intestinal tract is an important factor, it would seem reasonable to empty the intestines at the onset by catharsis in all cases. From the onset paralyzed limbs should be supported in a normal position, and muscular dragging and stretching should be avoided. Pain and sensitiveness, when present, generally last only for the first few days and will not long prevent the use of supports. A foot can be supported at right angles to the leg by splints of wood, tin, or plaster of Paris. It is doubtful if the use of massage and electricity in the first days after the attack is advisable. It would seem wiser to allow from one to three weeks for nerve centers to quiet down before stimulating their peripheral connections. How long the period of rest to the limbs should be carried out can not yet be stated, but will probably be answered definitely by the results observed in the recent New York epidemic.

The Stage of Established Paralysis.—A localized hematogenous myelitis has attacked the cord and has destroyed more or less at random certain areas of spinal nerve centers. Unless the cord lesion has been extensive (for the reasons discussed in the opening section) the chances are rather against the total destruction of all the centers and associations of any large number of muscles, some centers or associations having perhaps escaped.

It is, therefore, obvious that in the stage of established paralysis, whether early or late, it is important to prevent unnecessary muscular deterioration and to utilize, so far as possible, the unaffected cells in partly affected centers.

1. It is important to remove deformity by a preliminary operation when it is present to any considerable degree and not to correct the deformity and perform the tendon transfer at one operation.

In other words, to prevent (a) muscular stretching, (b) muscular disuse, which are both obviously harmful to the well-being of the muscles, and (c) stimulate to functional activity muscles partly paralyzed or simply disused.

It is coming to be the experience of those who deal with the later stages of infantile paralysis, and it has been particularly evident in this series of cases, that there exists in many paralyzed limbs a possible amount of muscular power that is not suspected and will not be available unless cultivated and developed. For example, it has several times been our experience in this series to examine cases of paralytic talipes equinus of long standing where there was no power in the anterior muscles of the lower leg. The tendo Achillis has been divided, and the foot put up at a right angle in plaster for three or four weeks. When this plaster has been removed, the anterior muscles have been found to functionate and from that point on to have recovered power. They had been stretched and out of balance before the

operation; when properly balanced and allowed to shorten they possessed function.

The absence of function in a muscle or group of muscles does not necessarily mean paralysis, even in the later stages of the affection, as long recognized by the neurologists. This paper becomes, therefore, a plea for the more persistent attempt to use other measures in addition to braces and operations in the treatment of these cases.

(*a*) *Prevention of Muscular Stretching.*—The harmful effect of stretching muscles in paralyzed limbs was dwelt on forty years ago by C. F. Taylor,[22] but has not been sufficiently remembered. He wrote as follows:

> Any position of a limb which allows the extensor muscles to become shortened must inflict a worse damage on the flexors by keeping them extended till they lose their remaining irritability and become degenerated. Now, we have another fact connected with these cases when they have arrived at the stage of deformity, viz: The difficulty of treatment consists much less in relaxing shortened muscles than in giving tone and strength to their antagonists—the lengthened and weakened ones. Indeed, it is this, in the destruction of all remaining muscular irritability, and in many instances the destruction and entire loss of the substance itself of the expanded muscle, which constitutes the principal anxiety in treating this class of deformities. As this important consideration has been many times neglected, if not entirely lost sight of, let us consider the effect of simple extension on the power and functions of muscular tissue in its healthy state.
>
> In reference to this the following propositions are believed to be true, viz.:
>
> First. To retain a healthy muscle in an expanded state for a certain length of time is to diminish or destroy its irritability and contractible force.
>
> Second. To extend a muscle while in the act of contracting, that is, to overcome it, is, at once, to destroy its irritability and force.
>
> Having shown that position of the limbs alone is sufficient to cause deformity even in the healthy subject, it only remains to inquire: Is this actually the case in infantile paralysis? The reply must be affirmative.

The importance of supporting the limb during the early stage in a correct position has been alluded to. In the stage of established paralysis orthopedic apparatus is intended not only to make locomotion possible, but to prevent deformed positions in standing and walking and with this to prevent muscular stretching. The foot should be neither in valgus, calcaneus, or varus when weight is borne, but supported in the proper plane at right angles to the leg. The knee should be neither in a flexed nor hyperextended position in weight-bearing, but straight. A very good general rule for the use of supporting apparatus is that it should be used when weight-bearing induces a deformed position in the foot or knee, because such deformity not only leads to permanent distortion of the bones, but is necessarily accompanied by prolonged muscular stretching and may lead to contraction deformity of the antagonistic, not stretched muscles.

(*b*) and (*c*) *The prevention of muscular disuse and the stimulation of nervous centers* in the cord in partially destroyed groups are accomplished together by the same measures. For a muscle to lie idle and not to contract is bad for it whether it is paralyzed, or partially paralyzed, or not paralyzed at all. It will deteriorate locally and its functional cord center will not be stimulated to establish new associations or develop any latent power. But as a prerequisite to all treatment of this kind it must be assumed that the foot is properly supported by apparatus in walking, if without it it falls into a position of deformity. (The use and function of supporting apparatus is discussed in text-books on orthopedic surgery.)

Having thus supported and held the paralyzed limb in a position fit for functional use, massage and electricity are to be regarded as measures to improve the condition of the muscles and to lead toward functional use of partially paralyzed, stretched or disused muscles. Of themselves they are not curative or especially helpful, except in so far as they promote muscular well-being and lead to muscular contractibility.

Active muscular contraction or muscle training is, in general, the most universally applicable therapeutic measure at our command and one insufficiently appreciated. Having worked with massage or electricity or both, for the development of the muscle or muscles an attempt should be made as soon as it becomes possible, to get the partly affected muscular group to contract in response to a voluntary impulse, at first being satisfied with only a quiver in the fibers at the attempted movement, but later affording aid in the attempted movement by the hand, by some improvised apparatus, such as a strap or bandage, or by the use of some mechanical apparatus, such as those of the Zander system, those used so extensively in Germany, or by some simpler form. In short, the effort is to be made to make the partially affected muscles contract without being overweighted and, having learned to contract, to educate them to use more and more power until they perform useful function.

To repeat this most important point, mechanical or conservative treatment should consist not only in supporting the paralyzed limb by an adequate and accurately fitted brace, but should push on to the development of muscles apparently paralyzed, but really with a possibility of function.

Tendon Grafting or Anastomosis or Transfer.[23]—Although there were 120 cases of tendon transfer in the present series, they will not be analyzed here, for the reason that a report on this subject has already been made from the hospital and because the limits of the paper are such that it is impossible to consider every phase of the subject, and, as this part of the subject is adequately treated in current literature, we have chosen rather to devote our space to those aspects of the subject which have received less attention. The following practical conclusions have, however, been reached from the study of these cases:

1. It is important to remove deformity by a preliminary operation when it is present to any considerable degree and not to correct the deformity and perform the tendon transfer at one operation.

2. The operation should not be performed on very young children.

3. Periosteal implantation yields better results than when tendons are united to tendons.

4. Simple operations are more satisfactory than complicated ones.

5. It is not advisable to turn sharp corners with transferred muscles, but to secure as straight a line as possible of muscular pull from origin to insertion.

6. The substitution of small muscles for large ones

22. Infantile Paralysis, Philadelphia, Lippincott, 1867.

23. Assn. franç. de chir., 20th cong., 1907, pp. 380-574.

is likely to be unsatisfactory, e. g., one of the peroneal muscles is rarely a satisfactory substitute for the gastrocnemius.

7. Tendons must be inserted on the stretch and the foot maintained for some weeks in a position of overcorrection.

8. The use of silk tendons has proved practicable and satisfactory.

9. Finally, the most striking conclusion that has been impressed on us is that the after-treatment is as important as the operation, if a successful result is to be obtained.

To perform a tendon transfer, fix the leg in plaster for some weeks, until muscular atrophy has become marked, and then to allow walking unprotected is bad the sixth week on and the newly transferred muscle is trained to its new function shortly afterward, and unless this massage and training are carried over some weeks, the best results can not be expected. No matter how good the operation, it must be followed up or the operation of tendon transfer will be regarded by the individual operator as a much overestimated procedure; if, on the other hand, he performs a sound and reasonable operation, and has his patient properly treated over a period of about six months, he will find it, in a large proportion of cases, one of the most satisfactory procedures in operative surgery. No importance can be attached to published results of tendon grafting unless there is published at the same time an account of the after-treatment. If it is lacking, poor results are explained.

The method followed at the Children's Hospital has been as follows: The plaster put on at the operation is worn for six weeks. It is then split, removed for massage, and reapplied. About two or three months after the operation a brace is applied which shall support the foot in a position to relieve strain on the transferred tendon, and muscle training is begun. Walking is allowed from three to six months after operation in this brace, when the tendon seems to possess enough power to warrant it, and the brace is discontinued when circumstances warrant it. At the Hospital Out-patient Orthopedic Clinic a department for massage and muscle training has proved a necessity and is devoted wholly to the treatment of infantile paralysis, both operative and non-operative. It has proved of such great use that it is planned to extend it in the near future and add simple mechanical appliances to amplify the work.

Arthrodesis.—The operation of arthrodesis was performed fifty times in this series, but will not be dwelt on in detail here, for the same reasons given in speaking of tendon transfer. The following conclusions have been reached from the study of these cases: The operation in the ankle joint is useful in properly selected cases. It has not been used in the knee. It has been both successful and unsuccessful in the hip, and fairly satisfactory in the shoulder, although here tendon transfer is advisable when possible. The use of arthrodesis in the ankle by means of silk has proved satisfactory and is preferable in children to the more destructive operation of removing the joint surface. The cutting away of the joint surface in young children is, at times, followed a few years later by a distortion of the foot into a posiition of varus. The latter operation should not be performed in the ankle on children much under the age of puberty.

TABLE 11.—RECORDED OPERATIONS FOR PARALYSIS OF LIMBS.

	Name of Observer.	Variety of Paralysis.	Operation.	Result.
1.	Peckham[24]	Peroneal	Int. into ext. popliteal	Marked improvement.
2.	Young[25]	Valgus	Branch to ant. tib. into musc. cut.	Great improvement.
3.	Taylor[26]	Equinus	Ext. into int. popliteal	More power.
4.	Taylor	Equinus	Ext. into int. popliteal	Can flex foot.
5.	Spiller and Frazier[27]	Ant. tibial	Ant. tib. into musc. cut.	Return of normal power.
6.	Spiller and Frazier	Peroneal	Ant. tib. into musc. cut.	No improvement.
7.	Murphy[28]	Talipes	Ext. popl. into int. popl	Improvement.
8.	Murphy	Peroneal	Musc. cut into ant. tibial and tenoplasty	Time too short for report.
9.	Hackenbruck[29]	Equinus	Ant. into ext. popl	No result—Keloid.
10.	Hackenbruck	Equino-varus	Ant. into ext. popl	No result—Keloid.
11.	Hackenbruck	Equinus	Ant. into ext. popl	Excellent result.
12.	Tubby[30]	Equino-varus	Nerves of gastrocn. soleus into ext. popl	Return of movement.
13.	Tubby	Equino-varus	Nerves of gastrocn. soleus into ext. p. pl	Return of movement.
14.	Tubby	Equino-varus	Ext. into int. popl	Unsatisfactory.
15.	Spitzy[31]	Anterior and exterior	Ext. into int. popl	Good result.
16.	Spitzy	Obstetr. paral.	Median into radial	Remarkable result.
17.	Tubby	Erb-Duchenne	Ext. into int. branches of brachial plexus	No definite result.
18.	Harris[32]	Deltoid	Fifth into fourth cerv. nerve	Good result.
19.	Penguiez[33]	Circumflex	Radial into circumflex	Too recent.

Nerve Anastomosis.—The question of the value of nerve anastomosis is still *sub judice* and the operation was performed only once, with negative result, in the series reported. About 20 cases have been reported in the literature, which are given in Table 11, which presents the results of available recorded operations performed for paralysis of the limbs. The brilliant results reported in some of the cases would seem to promise a future for the operation.

CONCLUSIONS.

Infantile paralysis is a less formidable affection than is generally believed, partial paralysis is common, disused and stretched muscles appear to be paralyzed, but possess a possibility of function. In addition to mechanical treatment, an attempt should be made by massage, electricity and especially by muscle training to wake to activity the remaining cells in partly destroyed groups and thus to secure muscles which perform function. After tendon transfer, the development by muscle training of the transferred tendons is essential to good results, and without this the percentage of failure will be large.

234 Marlboro Street.

24. Providence Med. Jour., January, 1900, p. 50.
25. Am. Jour. Orthop. Surg., i, 27.
26. New York Med. Jour., 1906.
27. THE JOURNAL A. M. A., Jan. 21, 1905.
28. Surg., Gynec. and Obst., April, 1907.
29. Assn. franc. de chir., 20th cong., 1907, p. 444.
30. Brit. Med. Jour., 1906.
31. Ztsch. f. Orthop. Chir., 1905.
32. Tr. Clin. Soc., London, 1905.

ABSTRACT OF DISCUSSION.

Dr. Harry M. Sherman, San Francisco: The one part of the paper which I am inclined to discuss is that relating to tendon transplantation for the correction of deformities incident to the paralysis. So far as the technic of the operation is concerned, I prefer the Langer method, which substitutes for the tendon of the paralyzed muscle, which is a paralyzed tendon, a silk tendon, which is quite as good as a normal tendon, if it is large enough and properly fastened to muscle and bone. The same is true of silk ligaments.

In dealing with the matter of paralyzed muscles we have in the first place to remember that no one muscle can do the work of two or three muscles, and if we attempt to make it do so we overload it. Moreover, if we move the attachment of a live muscle to the insertion of a paralyzed muscle we weaken the limb by the loss of the live muscle in its normal place. So that at the end we can not expect a normal limb, but can only look for a limb weaker in more than one of its components. In general we select to replace paralyzed muscles with other muscles which have a similar and nearly synchronous action with the paralyzed ones. If we are forced to make less obvious selections, as taking a flexor to do extensor work, we are not only overloading the muscle, but we are complicating the condition and lessening the expectation of a satisfactory result. The rearrangement, however, may tend to prevent the development of deformity, or the redevelopment of a deformity which has once been corrected, and with the aid of some special shoeing or of a simple concealed brace a gait may be possible with a minimal amount of limp.

In legs which are below par as regards their nourishment—for the trophic nerves are implicated with the motor nerves, and the motor nerves have been paralyzed—in these cases it seems not unlikely that growth may be stimulated by the use of the congestive bandage, applied according to the method of Bier. In two or three of my cases which I have been able to watch, and in which I resorted to this method, the paralyzed leg is growing at a little more rapid rate than its mate on which no congestive bandage has been placed. It is possible that thus a weak leg may be converted into a somewhat stronger one.

Dr. E. H. Ochsner, Chicago: Dr. Lovett calls attention to a large series of cases observed by one group of men in one locality. This point is of the utmost importance. Six hundred cases thus studied allow of deductions of far greater value than can be drawn from a much larger number of cases observed and classified by many men in various parts of the world. Again, the distribution of the groups of motor cells and the distribution of the circulation of the cord is a subject which is deserving of much attention, because it has an important bearing on the treatment of these cases.

I agree with Dr. Lovett most thoroughly that we should pay especial attention to the intestinal tract in the early treatment of these patients. Unfortunately, most of these cases are not definitely diagnosed during the first few days of the illness, but whenever the diagnosis is obscured and when there is a possibility of a beginning anterior poliomyelitis I would go even a step further than has Dr. Lovett and would contend that the bowels should be thoroughly evacuated by a large dose of castor oil, so as to render the intestinal canal as free as possible of all toxic material. I fully agree with Dr. Lovett that all deformity should be overcome before any attempt is made at tendon transplantation and also that we should not attempt to do too much at one time. I believe that it is very much safer to do one or two transplantations first, then observe what coordination will do, and help out with a secondary operation if necessary. I have repeatedly seen cases in which I felt convinced that too much had been done at the first operation. When a patient with poliomyelitis comes to me for treatment there are always two things which I try to accomplish: one is the re-establishment of muscular equilibrium and the other is proper coordination. When the operative procedure is completed the flexors should be exactly as strong as the extensors, the abductors as strong as the adductors, and if this ideal can be accomplished it is surprising with how little innervation one can still secure a reasonably useful limb. It is this point that I especially want to emphasize.

The general practitioners and neurologists in looking over their cases if they find the muscles very weak are very apt to conclude that an operation is not indicated. It is not so much a question of the innervation and development of the muscles, provided there is some innervation, as it is a question of whether muscle equilibrium can be re-established. I have found that after extensive operations some patients find it impossible to coordinate, to adjust themselves to the new conditions. If in such a case one will incase all of the joints in light but rigid plaster-of-Paris casts, if now one joint is let out of the cast the patient will learn to coordinate this group of muscles, and if one joint after the other is let out one can often get very good results in apparently almost hopeless cases.

Dr. R. W. Lovett, Boston: The two points that I wish particularly to make are: 1. The fact that a muscle will not functionate does not necessarily mean that it is paralyzed. It may be stretched and it is possible that it may be made useful to the patient if it is attacked properly. 2. Tendon-grafting alone will not do. The after-treatment is very important. To do tendon-grafting and to put up the leg in plaster for six or eight weeks and to allow the patient to walk is to invite a poor result. It is being recognized everywhere that the after-treatment is just as important as the operation, and that much of the criticism of the operation is wholly due to the absence of after-treatment.

CHEILITIS EXFOLIATIVA.*

M. L. RAVITCH, M.D.

LOUISVILLE, KY.

I think that Dr. H. Radcliffe-Crocker gave the above disease an appropriate name, since the most prominent symptom is exfoliation. Some authors are inclined to recognize it as a form of eczema, as did Besnier-Doyon, who called it *eczéma exfoliant des lèvres;* some insist that it acts like psoriasis; thus Bateman calls it psoriasis labialis. Since a few cases were associated with seborrhea, Rayer is inclined to think this disease a part of seborrheic process and calls it *pityriasis des lèvres.* Drs. Hyde and Montgomery in their text-book, insist that this affection should not be confounded with eczema, and call it "cheilitis glandularis apostematosa." So do Stelwagon and Volkmann. Lately Dr. Hyde recognized this disease as an instance of infective folliculitis.

SYMPTOMATOLOGY, PATHOLOGY AND TREATMENT.

From all the inquiries I have made I find that so little has been written about cheilitis exfoliativa that very few of the text-books go into the details of this disease. There is no doubt that many cases can be found; it is only to be regretted that some of the general practitioners, not knowing this to be a rare form of disease, pass it up as an insignificant affection that does not need much attention, as chapped lips or fever blisters, for instance. To describe this disease would be a repetition of the little that has been written about it, the uncertainties of its etiology and pathology, and the failures of the former forms of medical treatment that had been advocated. The symptomatology of the disease is uniform. The lower lip is usually the one that is affected. The affection always starts with an erythema or edema, the muciparous glands being subsequently involved. Follicular openings may at times follow with a scant exudation of mucopurulent secretion with excessive epidermis formation and cornification. In one of my cases

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-ninth Annual Session, held in Chicago, June, 1908.

the skin of the chin became erythematous. Later on the thick scales become loosened (process of exfoliation) and the lip underneath it is dry, glazed and at times fissured. I never found, as in Duhring's cases, that the disease was associated with a depressed state of the nervous system. Seborrhea of the scalp was not associated with any one of my cases. Clinically the disease is closely allied to Paget's disease (eczema of the nipple). Like the latter disease, it may start with a sclerotic eczema; later it may assume the form of a dry scaly or branny exudation affecting the entire surface of the lower lip, which is darker colored, firmer and less pliant and elastic than its upper fellow. It apparently has all the phases of eczema of the nipple and at times, like that affection, may become malignant. Perhaps in many a case of epithelioma of the lower lip the initial symptoms were the same as found in cheilitis exfoliativa. In Jamieson's case of cheilitis exfoliativa the thickening of the prickle-cell layer was so well marked that Leith thought it to be a mild form of epithelioma.

Little, however, is known of the pathology of the disease. No pathogenic microbe was ever isolated from a case, though attempts have been made in that direction. Though Dr. Hyde recognizes this disease as an instance of infective folliculitis, Dr. Heidingsfeld was right when he wrote me:

"Researches in this direction, as far as I am able to determine, are inclined to show that parasitology is rather accidental than causal in nature."

From my own observation I am forced to look on cheilitis exfoliativa as a clinically very important and pathologically most interesting form of keratosis, as found in eczema of the nipple or in other dermatoses in which excessive epidermis formation and cornification are the chief features. Whether this process is primarily a hyperplasia of the rete with induced secondary changes, or whether it originates as an inflammation of the papillary layer of the corium, producing cell infiltration and vascular dilatation, is only a matter of speculation.

Though therapeutic results in former years have not been the most gratifying, the latest reports are very encouraging. Mild antiseptics and the *x*-ray, if they did not accomplish a radical cure, have greatly benefited the disease. Dr. Hyde had best success with very cautious use of the *x*-ray and local antiseptics. Dr. Gilchrist asserts that the *x*-ray treatment is the most efficacious. He applies enough to produce a reaction. In two private cases he used the *x*-ray and the result was a cure in both instances. Pure carbolic acid was used by him in one case with great benefit but no cure. In my own cases I used different methods, and the best way to describe them is to give a summary of my cases up to date:

REPORTS OF CASES.

CASE 1.—*Patient.*—W. P., aged 39, was referred to me by Dr. T. Kinnard of Lexington, Ky. He was a farmer and stock-raiser. His family history was good. He denied ever having syphilis, but had suffered from leucokeratosis buccalis for over five years. While the patient was sent to me for leucokeratosis buccalis only, his lower lip had a typical form of cheilitis exfoliativa. Under 15 per cent. solution of nitrate of silver by cataphoresis the lip got entirely well, while the leucokeratosis buccalis persisted, though greatly improved.

CASE 2.—*Patient.*—H. F., a local dry-goods merchant, aged 46, consulted me in March, 1907. His family history was good. He had never had any venereal disease. He was an inveterate smoker. Within the last two years his lower lip had begun to feel tight and itchy. At first he thought he had chapped lips, but when he noticed exudation, crustation and exfoliation, he consulted several physicians and one of them pronounced the growth malignant. On examination I found it to be a usual type of cheilitis exfoliativa. The mucous and salivary glands of the mouth were not affected. After fourteen *x*-ray treatments the patient was discharged cured. I saw him two weeks ago and not a sign of the disease was noticeable except that the skin on the lower lip was of darker color than the upper lip.

CASE 3.—*Patient.*—S. H. R., Shepherdsville, Ky., aged 35, was referred to me by Dr. W. Boggess. The patient's family history was good. He had always enjoyed good health. The symptoms were identical with those of Case 2, except that exfoliation was more pronounced. The patient was seen by Dr. Heidingsfeld, who pronounced the disease lupus erythematosus. The examination was made in the evening and was a hasty one. As the patient could not come to my office regularly I applied a 15 per cent. solution of nitrate of silver, followed by Lassar's paste (the one with salicylic acid) daily. Later on I used the *x*-ray. The patient improved.

CASE 4.—*Patient.*—A whisky drummer, aged 48, referred to me by Patient 2. It is a peculiar thing that patients with a certain disease always know people suffering from the same affection. The patient had nothing of importance in the medical history except that he suffered from rheumatism. He complained of dryness in the mouth and contraction of the lower lip. The symptoms were the same as in all previous cases except that the muciparous glands were more involved, the exudation and crusting more pronounced. As the patient greatly objected to *x*-ray exposures, I used tincture of iodin by cataphoresis and Lassar's paste as a daily application. The patient showed great improvement.

In addition to the foregoing cases, two more cases were reported to me, one by Dr. W. Boggess and one by Dr. F. T. Fort, both of this city.

How long the relief or cure may be expected to last I can not say. There is no doubt in my mind that some cases will relapse in spite of energetic and seemingly successful treatment. When the true pathology of the disease is established we may not have to work in the dark, as we do now. For the present all attempts to arrive at the real pathologic basis have amounted to naught.

THE PIGMENTATIONS OF THE MUCOUS MEMBRANE OF THE MOUTH.*

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The pigmentations of the mucous membrane of the mouth have not been sufficiently studied. In many instances I have noted that histories of reported cases, complete in other respects, were lacking in the simple statement that pigmentations of the mucous membrane of the mouth were present or absent.

The diseases of the mucous membrane of the mouth were made the subject of a symposium at the twenty-eighth annual meeting of the American Dermatological Association without the pigmentations being mentioned in any of the papers presented or in the discussion. Our knowledge of pigmentations of the buccal cavity is meager, partly because they are rare and partly because they are not sought for in patients presenting pigmentary lesions of the skin.

Dentists inform me that they often notice pigmentations of the mouth without considering their signifi-

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-ninth Annual Session, held in Chicago, June, 1908.

cance. It is only through the combined efforts of many observers that our knowledge of a subject which has attracted so little attention as has this, can be augmented. With the hope of stimulating my colleagues to search constantly for pigmentations of the mucous membrane of the mouth and also to induce them to report their cases, I venture to present what little I may on the subject.

CONGENITAL PIGMENTATION.

The most common form of congenital pigmentation of the skin is the soft mole which may be simply a pigmentation of the skin or which may present itself as a mammillated nodule with or without pigmentation and hairy growth. Oppenheim[1] has reported a case of soft mole affecting the conjunctiva of the eyball and extending even over the cornea, but I find no cases on record in which soft moles were present in the mucous membrane of the mouth. Even in cases in which the cutaneous surface was studded with pigmentary moles, as in the cases reported by Danlos, the mucous membrane of the mouth was free from moles.

In spite of the negative literature, I am convinced that such growths occur in the mucous membrane of the mouth. I have observed one case.

The patient was a woman, sixty years of age. All her life she had had a nodule of the mucous membrane of the hard palate, situated in the middle line of the roof of the mouth midway between the teeth and the soft palate. It had steadily increased in size in recent years. At the time of observation it was a flattened elevated mammillated tumor the size and shape of a lima bean and not pigmented. There were a few pigmentary moles of the skin present.

Reasoning a priori, if pigmentary soft moles occur in the mucous membrane of the mouth, we should expect them to present a darker shade of pigmentation than corresponding skin lesions because nearly all pigmentations of mucous membranes are darker than analogous cutaneous chromatoses. They would usually be melanotic. We should not expect that pigmentary moles would always be present at the time of birth, for the reason that they and many other developmental defects of the skin, such as benign cystic epithelioma, frequently present themselves clinically for the first time in adult life. Further, we should expect endotheliomas to develop in some cases in such areas of pigmentations.

Roy[2] has reported a case of melanosis of the palate which, after existing twenty years, became sarcomatous. The microscopic appearance which the growth presented in this case was that of an endothelioma or what Unna calls a nevo-carcinoma. As the endothelioma is a special form of malignant disease which usually develops on moles, it is extremely probable that the melanosis present in this case for twenty years prior to the appearance of the malignant disease was a mole.

Whitfield[3] showed a woman with anomalous pigmentations of the mucous membrane of the mouth which he did not believe were moles because they did not date from childhood. These pigmentations may not have been moles, but the reason he assigned is entirely insufficient to exclude this possibility of diagnosis.

The pigmentations of xeroderma pigmentosum affect the vermilion border of the lips[4] (Nicolas' case) but they have not been observed in the mouth.

1. Deutsch. med. Wchnschr., 1903, No. 8.
2. Laryngoscope, 1907, p. 868.
3. Brit. Jour. Dermat., 1907, p. 203.
4. Nicolas: Ann. de Dermat. et de Syph., 1906, p. 537.

The fibroma molluscum tumors of von Recklinghausen's disease frequently occur in the mouth, but the pigmentations affecting the mucous membrane must be quite rare, as they have not been present in any of my cases, and the only mention of them in recent literature is the report by Oddo,[5] who describes them in two cases as well-defined areas of pigmentation affecting various parts of the mucous membrane and resembling the pigmentations which may be seen in the mouth of dogs.

ACQUIRED PIGMENTATION.

Traumatic.—Where injury produces hemorrhage into the mucous membrane, pigmentations may remain long after the effusion of blood has been absorbed. It is possible that such pigmentations may be permanent, but ordinary injury to the mucous membrane from rough teeth or other mechanical or chemical irritation does not cause pigmentation.

Addison's Disease.—The pigmentations of the mucous membrane of the mouth in this disease are usually not the same shade of bronze-color as is the skin, but consist of circumscribed areas of melanotic pigmentation. They are rarely absent and are of great diagnostic importance.

Akanthosis Nigricans.—The skin lesions of this disease are warts and pigmentations. The mouth is seldom free from lesions, but the lesions are not pigmentated, they are papillomatous and warty excrescences.

Arsenical Pigmentations.—Although arsenic frequently causes cutaneous pigmentations, there are no cases on record of the drug producing pigmentations of the mouth. Audry[6] reported a case of pigmentation of the mucous membrane of the mouth caused by arsenic in 1896, but subsequently on postmortem examination it was found that the patient had Addison's disease and a note correcting the error was published in 1898.

Lichen Planus.—On disappearing this disease leaves brown or slate-colored pigmentations of the skin. The disease usually affects the mucous membrane of the mouth, and within recent times Dubreuilh,[7] Hyde,[8] Lieberthal,[9] and others have described the mouth lesions of this disease, but none of these authorities mention pigmentations of the mucous membrane of the mouth as lesion relics. In none of the cases that I have had the opportunity to examine were there pigmentations present. I have examined one patient who was rarely free from buccal lesions during ten years and still there were no pigmentations present. Danlos has published a report of a case in which there was one large plaque of slate-colored pigmentation present. There was doubt as to whether the pigmentation was caused by lichen planus; it might have antedated the disease.

Scleroderma.—Stelwagon emphasizes the fact that pigmentation is frequently a lesion relic in scleroderma. Audry[10] has reported a case of scleremia (a term used to designate those cases in which the disease extends much deeper than the skin producing a rigidity of the muscles) in which ill-defined plaques of pigmentations were present in the mucous membrane of the cheeks.

Phthiriasis.—Thibierge[11] and a number of others have observed melanotic pigmentations of the mucous membrane of the mouth in cachectic subjects with

5. Ann. de Dermat. et. de Syph., 1906, p. 803.
6. Ann. de Dermat. et de Syph., 1898, p. 538.
7. Ann. de Dermat. et de Syph., 1903, p. 123.
8. Jour. Cut. Dis. and Syph., 1903, p. 105.
9. Lieberthal, David: Lichen Planus of the Oral Mucosa, The Journal A. M. A., Feb. 16, 1907, xlviii, 559.
10. Ann. de Dermat. et de Syph., 1906, p. 972
11. Ann. de Dermat. et de Syph., 1892, p. 734

cutaneous brown pigmentations. The fact that such buccal pigmentations occur only in cachetic individuals suggests the thought that hemochromatosis is the cause of such pigmentations rather than pediculi per se. This possibility of diagnosis has been excluded by the absence of iron in excised tissue of the mucous membrane in the case of Le Play and Dehu.[12] Osler[13] says that whenever hemochromatosis, either with or without diabetes, is suspected, the correctness of the diagnosis *intra vitam* will be made much more probable by removal of portions of the pigmental skin and the finding (by the potassium ferrocyanid test) of iron-containing pigment in the cells of the sweat glands and of the ochre-yellow in the muscle fibers of any blood vessels that may be present by the use of hemofuschin. That pigmentation is actually caused by pediculi is shown by the fact that *Pediculi pubis* cause blue pigmentations of the skin, so that, with hemochromatosis excluded, it is extremely probable that *Pediculi corporis* produce brown pigmentations of the skin and black pigmentation of the mucous membrane of the mouth. Cutaneous brown pigmentation will quickly disappear in these cases by the use of bichlorid baths, the method formerly employed to differentiate certain cases from possible Addison's disease. Hemochromatosis produces pigmentation of the skin, but no special attention has been paid to the mucous membrane of the mouth.

Anomalous Pigmentations.—I include in this class all pigmentations of the mucous membrane of the mouth which can not be assigned to any of the preceding disorders. They constitute the largest number. These pigmentations are almost invariably located in the mucous membrane of the lips. Patients are frequently ignorant of their presence. These are usually well-defined areas of black pigmentation. I have not observed them in healthy individuals. I have observed these plaques on the lips of patients suffering from gastrointestinal autointoxication, diabetes and neurasthenia.

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ABSTRACT OF DISCUSSION.

DR. WILLIAM A. PUSEY, Chicago: The subject of diseases of the mucous membrane of the mouth, including the pigmentations, may be called almost a *terra incognita*, and anything that tends to summarize what we know about the subject is extremely useful. I have been watching pigmentary lesions of the mouth and have observed them chiefly with the view of trying to ascertain the reasons for their occurrence. I know that frequent references to the pigmentation of the mucous membrane in pediculosis have been made, but I have never been able to understand the mechanism of its production. Nor have I ever been able to find it, in spite of the fact that I have rather a large clientèle among the classes who suffer from pediculosis. Has any one present ever seen it? Dr. Anthony referred to the pigmentation on the inner surface of the lips occurring occasionally in neurotic individuals. I showed him such a case about two years ago. The patient, an extremely neurasthenic woman, developed spots of pigmentation on the inner surfaces of the lips. The lesions subsequently disappeared and have never recurred. Dr. Anthony referred me to similar cases in French literature.

DR. H. G. ANTHONY, Chicago: I have never seen pigmentation in pediculosis, although constantly on the lookout for it, almost from the time I began to practice medicine. The condition is so thoroughly accepted by French writers, however, and they have taken such pains to exclude other causes that I think it is fairly well established. The pigmentations of the mucous membrane of the mouth in neurasthenia are not so infrequent. They occur mostly on the lips.

12. Ann. de Dermat. et de Syph., 1906.
13. Modern Medicine, i, p. 756.

CRITERIA AND STANDARDS IN INFANT FEEDING.

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The criteria are all those signs and symptoms in the behavior of the infant by which we judge of the sufficiency and suitability of its food. By standards are meant the more or less fixed quality and quantity of the food and its various constituents. While the quality of the food, such as its cleanness, freshness, etc., is of prime importance, yet in this article it will be taken for granted that the quality of the food is all that can be desired, and therefore in the discussion of standards I shall deal only with their quantitative aspect.

THE VARIOUS CRITERIA.

If the baby is uncomfortable and fretful after being fed, and all possible external causes of discomfort have been eliminated, the probability is that there is something wrong with the food. If the discomfort comes immediately after feeding, the quality of the food may be all that is desired, but the quantity is likely to be at fault, either deficient or excessive, whereas, if the discomfort comes some time after feeding, the likelihood is that the quality or character of the food is not suitable for that particular baby.

The normal healthy young infant usually falls asleep after being fed. If it does not do so, there is usually something wrong, and that something may be the food, its quantity, quality or suitability. A normal baby may cry from some cause or causes other than the food, but in a large proportion of the cases the feeding is at fault. The normal healthy baby will have a normal stool, homogeneous, mustard-yellow in color, of a not unpleasant odor, a salve-like consistence and free from admixture with curds or mucus.

The healthy baby will gain in weight in a certain pretty well defined way,[1] that is, the first three months it will gain about half a pound a week or an ounce a day, the next three months the gain being not so rapid, about a quarter of a pound a week, half an ounce a day or an ounce every two days. With this gain in weight should go a gain in length, a gain in strength and activity and a general development. By reference to Table 1 it will be seen that the average gain in length is one inch a month for the first four months, and thereafter half an inch a month until the end of the first year.

TABLE 1.—SHOWING APPROXIMATELY THE WEIGHT AND HEIGHT OF THE BABY DURING THE FIRST YEAR AND THE GAIN IN EACH.

Age.	Weight in lbs.	Gain in oz.	Gain per wk. in oz.	Height in in.	Gain in in.
Birth	7¼			19	
10 days	7¼	0	0		
2 weeks	7½	4	0		
3 weeks	8	8	8		
4 weeks	8½	8	8	20	1.0
2 months	10½	32	8	21	1.0
3 months	12¼	28	7	22	1.0
4 months	13¾	24	6	23	1.0
5 months	14¾	16	4	23.5	0.5
6 months	15¾	16	4	24	0.5
7 months	16½	12	3	24.5	0.5
8 months	17	8	2	25	0.5
9 months	17½	8	2	25.5	0.5
10 months	18	8	2	26	0.5
11 months	19	16	4	26.5	0.5
12 months	20	16	4	27	0.5

During the first three or four days the baby loses weight, from one or two ounces to ten or twelve. In Holt's series of one hundred the average initial loss was

1. Holt: Diseases of Infancy and Childhood. Griffith: The Care of the Baby.

ten ounces, or 11 per cent. of the body weight. Dr. Effa V. Davis'[2] series of eighty-seven shows an average initial loss of 5.42 ounces, or 4.7 per cent. of the birth-weight. After the mother's milk is being secreted freely the weight steadily increases, until by the tenth day the nursing infant regains its birth-weight.

A glance at Table 1 shows that the period of most rapid growth is during the first three or four months, and that the increase in weight is slowest during the eighth, ninth and tenth months. During the first four months we look for an increase in weight of six or eight ounces a week, or three-quarters of an ounce to an ounce a day. For the next two months, that is, the fifth and sixth months, we expect an increase in weight of about four ounces a week, or a half an ounce a day. During the first six months one should not be satisfied with an average weekly gain of less than four ounces.

A gain in weight may be very deceptive. The increase may be largely fat, as in those cases in which the food is chiefly carbohydrates and fats. In such cases the gain in weight is not accompanied by a suitable gain in strength, nor by the proper development one should expect. It has been shown that young, growing animals fed on a carbohydrate-rich but proteid-poor[3] diet increase in weight as rapidly as those fed on a proteid-rich diet, but that their musculature, their blood and their bones are very incompletely developed, and that they readily succumb to disease.

The criteria, then, by which we decide as to whether the baby is being properly fed are these six: comfort, sleep, good nature or at least the absence of much crying after feeding, the stools, the regular gain in weight, and the gain in strength and development.

THE VARIOUS STANDARDS.

If the baby is satisfactory when judged by these criteria and its condition and progress continue to be satisfactory, one need give himself little concern about how and what the baby is fed. Either the food is suitable or the baby is blessed with a constitution and digestion such as to make little difference whether it is or not. But suppose the baby's condition and progress are not satisfactory; then we must experiment with the food until we have one which, judged by the criteria just mentioned, is suitable for that baby. In order that we may not do this blindly and by mere guess and trial, we ought to have certain standards to which we should strive to approximate; otherwise we may be a long time experimenting before we find a food that will measure up to the criteria, and much harm may have been done by unsuitable foods before we have found a satisfactory one, one that will fulfill the requirements of the aforementioned criteria. These standards I take to be three:

1. The daily proteid or proteid quotient.
2. The daily energy or energy quotient.
3. The nutritive ratio or the energy proteid ratio.

A MAXIMUM AND MINIMUM PROTEID STANDARD.

I have named these standards in what I consider the order of their value. The proteid is of first importance. It is on the proteid that the body must depend for growth and development. The fat and carbohydrates of the food can be made to furnish heat and energy for the baby, but they can not be made to furnish a drop of the digestive or other physiologic secretions, a grain of muscle or a single living cell. The proteid alone can be used for these purposes. It can, if needed, take the place of the fat in furnishing energy or heat, but the fat or carbohydrate can never supply the place of the proteid.

Proteid is needed not only to repair the waste of proteid that is continually going on in the tissues, but it is also needed to furnish the material for growth. An adult needs only enough proteid to repair the waste. An infant needs proportionately more than an adult, for it not only has to repair waste, but must grow as well—that is, make new tissue.

Now the weight of a baby is a more reasonable and more scientific basis for determining the amount of food than the age, and the method is just as simple; so that, instead of determining how much proteid a baby of a certain age should have each day, it seems better to put our standard for proteid in terms of the quantity per pound per day—that is, the daily proteid for a baby divided by the weight of the baby in pounds, and hence the name of proteid quotient which I have suggested.

How can we fix on any such standard? In attempting to establish a proteid minimum and maximum standard I first reviewed the results recorded in ninety-five cases of breast-fed babies.[4] The babies were weighed before and after every nursing for weeks, in some of the cases for as long as thirty weeks. The total milk per day for each was thus determined, the proteid per cent. estimated and the total daily proteid for each baby calculated. The average daily proteid divided by the average daily weight gives the proteid per pound per day, or what I have called the proteid quotient.

From the recorded observations which I have mentioned the average proteid quotient appears to be about 4 or 4.5, that is 0.04 to 0.045 of an ounce[5] for each pound of the baby's weight. Estimating the proteid per cent. of mothers' milk at 1.75, the proteid quotient for some of the babies for a week at a time would run as low as 3.5 and for others as high as 6 or more. A study of these cases as a whole led me to tentatively fix the proteid standard or proteid quotient at a minimum of 4 and a maximum of 6. This means 2 or 3 ounces of mothers' milk, and considering good cows' milk as containing 3.5 to 4 per cent. proteid, this proteid standard would call for 1 to 1.5 ounces of good cows' milk for each pound of the baby's weight every 24 hours.

This standard I attempted to check up in the following way: A child excretes, mostly in the urine, an amount of nitrogen equivalent to .02 to .03 of an ounce of proteid per pound per day when fed on a proteid-free diet. If gradually increasing amounts of proteid are now fed, it still excretes no more than .03 of an

2. Dr. Davis was kind enough to show me the figures before the publication of her paper.

3. Henry: Feeds and Feeding, Wis. Agr. Exp. Sta. Reports, 1886, 1887, 1888, 1889. Sanborn: Mo. Agr. Coll. Bull., 10, 14 and 19. Shelton: Kan. Agr. Sta. Bull., 9. Duggar: Ala. Agr. Sta. Bull., 82. Fortier: Ext. Trav. Coc. Cent. Ag. Dept. Seine-Inf., 1889-'90. Allen: Proteid in Infant Feeding, Arch. Pediat., December, 1907.

4. Haehner: Jahrb. f. Kinderh., xv, 23; xxi, 314. Laure: Thèse, Paris, 1889. Ahlfeld: Deutsch. Zischr. f. Prakt. Med., 1878. Freer: Jahrb. f. Kinderh., xiii, 195. Davis: THE JOURNAL A. M. A., 1908.

5. It seems better to express the proteid quotient in whole numbers, understanding that they represent hundredths of an ounce, than to express it in decimals. We need some short, simple name for hundredth or per cent. of an ounce, for it is a very convenient unit for measuring the proteid, the sugar, the fat and the energy.

6. Van Slyke: Modern Methods of Testing Milk, 1907. Babcock: Food Insp. and Analyses by Leach, 1907. Farmers' Bull., 29, U. S. Dept. of Agr., 1895. Bunge, Richmond and Billitz: Cited in Hyg. Lab. Bull., 41.

ounce until the amount taken as food considerably exceeds the outgo. The .02 to .03 ounce is the amount necessary to maintain the proteid balance, but does not allow for growth. The difference between the income and the outgo is the amount retained to provide for the growth and development, and the sum of the amount excreted on a proteid-free diet plus the amount retained for growth is the total proteid required per pound, or the proteid quotient.

I can claim only an approximate accuracy for the results in the cases I have studied, owing to the obvious difficulties in collecting the urine of infants and in feeding a proteid-free diet for a number of days, but my results seemed to indicate that about 0.02 of an ounce of proteid is needed for repair, and that from 0.015 to .03 of an ounce is needed for growth and development, and that therefore 0.035 of an ounce represents the minimum amount necessary for growth and 0.05 of an ounce represents the maximum.

Table 2 is not intended to represent the actual results but only to illustrate in a general way the data from which the above conclusions are drawn. The figures for the proteid given, excreted and retained, are in hundredths of an ounce and are for each pound of the baby's weight.

TABLE 2.

	Proteid given.	Proteid equivalent of nitrogen excreted.	Proteid retained.
1	.60	.02	.00
2	.01	.02	.00
3	.02	.02	.00
4	.03	.02	.01
5	.045	.02	.025
6	.06	.035	.025
7	.07	.045	.025

The first and second lines show that not enough proteid is given to maintain proteid equilibrium. The third line shows proteid balance. The fourth and fifth lines show that 0.025 ounce can be retained for growth and reserve. The sixth and seventh lines indicate that no more than 0.045 can be utilized, 0.02 to repair the waste and 0.025 for growth and reserve.

That this proteid quotient is two or three times as large as that considered necessary for an adult is not to be wondered at, for the proteid metabolism of the infant must be about three times as great as that of the adult, as is evidenced by the fact that the baby's weight is doubled in five months and trebled in a year, whereas in the adult there is practically no growth, no new secretion, no development or growth of glands, brain or other organs.

We may therefore, I think, safely put the minimum proteid quotient at 3.5 to 4 and the maximum at 5 to 6, or 1 to 1.5 ounces of good cows' milk to the pound. If the milk contains less than 3.5 to 4 per cent. proteid, then the amount of milk will be proportionately more, thus 1.33 to 2 ounces of a 3 per cent. proteid milk or 2 to 3 ounces of a 2 per cent. proteid milk would be needed to satisfy the requirement of this minimum and maximum standard.

THE ENERGY STANDARD OR ENERGY QUOTIENT.

As a result of careful observation on a few normal children Heubner concluded that the normal healthy baby required in twenty-four hours an amount of food sufficient to furnish 100 calories of energy for each kilogram of its weight. Translated into our more familiar English terms, this means that the baby should have in every twenty-four hours for every pound of its weight sufficient food to provide 45 calories of energy. As this is the equivalent of the energy which can be obtained from 0.39 ounce of sugar, we have a good idea of what this standard means by picturing to ourselves a level tablespoon of milk sugar or 3 level teaspoons of cane sugar as the energy requirement of each pound of the baby.

My own experience is that this is a fair standard, but that all babies are not alike in regard to their requirement of energy, even though they are of the same age and weight, and though the general conditions and environment are similar. An active baby that is kept nervous and excited through too much handling will require more than a baby that is kept quiet. A fat baby will require less than a thin one, owing to the lesser heat radiation. During the period of rapid gain in weight, viz., the first five or six months, the energy need, or perhaps I should say the need for energy food, is greater than thereafter, so that for some time I have advocated a standard with a considerable range,[7] 35 to 45. Czerny and Kellar,[8] also, draw attention to the fact that 45 is sometimes too small, but oftener too large.

Budin[9] and many of the French pediatrists give 100 grams of pure milk per kilogram of the weight of the baby during the first few months—that is, one-tenth of the body weight. One-tenth of a pound is 1.6 ounces. Each ounce of good milk will yield 20 calories and 1.6 ounces will yield 1.6×20, or 32 calories. Therefore Budin's energy quotient is about 32, or a little less than the minimum I have suggested for continuous feeding.

For normal healthy babies, then, it appears that the energy quotient should be between 32 and 45. Occasionally we may find that we should give less than 32 or more than 45, but then only for a short while. For most babies for most of the time the energy quotient at 40 or 42 will be found to give most satisfactory results.

As a check on this energy I turned to the recorded observations on the breast-fed babies to see if I could find there anything that would either confirm or modify this energy quotient which I had adapted from Huebner and Budin, putting it at approximately 40 and allowing a range of 35 to 45. From these observations it appears that the average baby consumes, per pound, about 2 to 2.5 ounces of its mother's milk, each ounce having an average fuel or energy value of 20 calories. This would make the energy quotient 40 to 50, which is seen to be fairly consonant with the Huebner standard of 45.

When we remember that the energy quotient for an adult man at moderate work[10] is not over 22—that is, 3,300 calories per day for a man weighing 150 pounds—it may appear that an energy quotient of 35 to 45 for a baby is disproportionately high, being 1.5 to 2 times as great. The explanation of this must be sought in: 1. The relatively greater growth and greater storage of reserve material; 2, the greater metabolic activity; 3, the proportionately greater surface and in consequence the greater radiation of heat.

THE NUTRITIVE RATIO OR THE PROTEID RATIO.

In infant feeding, so far as I am aware, practically no attention has been paid to the nutritive ratio—that is, the relation between the proteid or tissue-building

7. Allen: Chicago Med. Recorder, April, 1907.
8. Des Kindes Ernahrung, Ernahrungstor. und Ernahrung Ther., Cap. 19.
9. Man. Prat. d'Allaitment.
10. Hirschfeld (Felix): Pflüger's Arch. f. d. ges. Physiol., xii, 533. Voit (Carl): Zischr. f. Biol., xxv, 232. Klemperer: Zischr. f. Klin. Med., xvi, 550. Breisacher: Deutsch. med. Wchnschr., No. 48. Chittenden: Nutrition of Man.

constituent on the one hand, and the fats and carbohydrates, or the energy-producing constituents of the food, on the other. It seems to me that the nutritive ratio, or, as I prefer to call it, the proteid ratio, is almost as important as the energy, for the energy quotient enables us to control the food only so far as the energy is concerned. It gives us no help in controlling the amount of proteid, either absolute or relative. The proteid quotient enables us to control the absolute amount. The nutritive ratio is intended to control the relative amount. As I have already indicated, the proteid control is the most important. With it and either the nutritive ratio or the energy quotient we can maintain absolute control of the feeding and may know at any time exactly what we are doing.

Some time ago I devised a scheme[11] for calculating the amount of sugar or fat to be added, using the proteid quotient and the ratio as the basis, the energy quotient being used merely as a check. Just as in the case of the proteid quotient and the energy quotient there should be a minimum and maximum and no attempt should be made to fix a uniform, undeviating standard for the ratio.

To guide us in establishing these, let us consider the nutritive ratio of mother's milk and the ratio in a well-balanced diet for adults. In mother's milk the ratio ranges from 8 to 12 or 13, averaging about 9. In what has been considered for many years a properly balanced diet for adults the ratio is one to five. It seems reasonable, therefore, to begin with a ratio about 9 or 10, and gradually reduce it to 8, 7, 6 and 5, the last mentioned being reached about the eighth or tenth month. My own idea of how the ratio should change is indicated in the following table:

TABLE 3.—THE NUTRITIVE RATIO SUGGESTED FOR THE FIRST YEAR.

Age.	Ratio.	
First month	12 to 8	Average 9
Second and third months	9 to 7	" 8
Second quarter	8 to 6	" 7
Third quarter	7 to 5	" 6
Fourth quarter	7 to 5	" 5

The maximum ratio, it will be seen, is 12, and the minimum 5. The nutritive ratio at any age should lie between these, and since the ratio in the baby's natural food averages about 9, the presumption is that the baby should do better with the ratio nearly 9 than on a very low ratio. There are some reasons, however, for allowing a low ratio like 5. In general babies do well on whole cow's milk after the eighth or tenth month. In cow's milk containing 4 per cent. fat, 3.5 per cent. proteid and 4.5 per cent. sugar, the proteid ratio is rather more than 1 to 4. Personally, I think it is not wise to keep the proteid so large a proportion of the food. Some of the sugars, starches or fats should be added, to at least keep the proteid down to one-sixth of the total food—that is, a proteid ratio of 1 to 5.

It may be thought unnecessary to keep in mind any limits to the ratio, as it would seem that the proteid ratio in most infant foods would naturally fall between these limits. A very cursory examination of the modified milks and proprietary foods in common use will show that the ratio often runs as high as 20 and as low as 2; that is, in the former case the baby is getting almost exclusively energy-producing food, and in the latter case the food is too largely tissue-building, and the energy needed must be obtained from food primarily intended for a different purpose. In whole milk, as I have said, the proteid ratio is about 1 to 4. In skim milk it is 1 to 3 or less. Babies are sometimes fed on these for some length of time, but viewed from the standpoint of the natural babies' food or the food of adults, it seems to be unreasonable to use these for any length of time.

11. Chicago Med. Recorder, April, 1907.

THE PRACTICAL APPLICATION OF THESE STANDARDS.

1. *The Proteid Quotient.*—All good undiluted milks containing 4 or more per cent. of fat may be assumed to contain 4 or more per cent. of proteid, and therefore the minimum proteid quotient, 4, calls for 1 ounce of milk for each pound of the baby's weight, and the maximum, 6, requires that 1.5 ounces be fed for each pound. Intermediate quotients, such as 4.5 and 5, require 1⅛ and 1¼ ounces, respectively. The total undiluted milk for the day is, therefore, this factor: 1, 1⅛, 1¼, 1⅜ and 1½, multiplied by the weight in pounds, and this is true whether the milk be whole milk, top milk, skim milk, buttermilk or any undiluted good milk.

Example: A baby weighs 16 pounds. The proteid quotient desired is 5, or 1¼ ounces to the pound. We know at once that we require:

WHOLE MILK $1\frac{1}{4} \times 16 = 20$ OZ.

2. *The Energy Quotient.* We may employ the energy quotient merely as a check or as a basis of feeding. (a) As a check on the feeding. The total energy of the food for the day is calculated and divided by the baby's weight. In this way we ascertain the energy quotient which this food would supply. If this proves to be higher or lower than the quotient desired, we modify the food accordingly. (b) But the better way to use the energy quotient is to employ it as a basis, as one of the specifications which the food must fit. To illustrate: A baby five months old weighs 15 pounds. It is desired that its food shall furnish an energy quotient of 40. We know that this is the equivalent of two ounces of whole milk to the pound, but since our maximum milk to the pound is 1.5 ounces, let us fix the amount of milk to be fed this baby, say at 1.5 ounces. Since this quantity of milk will furnish 30 calories, we shall have only 10 calories to be made up by the sugar, cereal, cream or starch. If we add sugar or cereal we would require 10×15 divided by 120, or about 1.25 ounces. We make our calculations concisely thus:

MILK ENERGY $1.5 \times 20 = 30$ CAL.
ENERGY TO BE ADDED $40 - 30 = 10$ CAL.
SUGAR TO BE ADDED $10 \times 15 \div 120 = 1.25$ OZ.

Or, in one expression:

$$15\ (40 - 1.5 \times 20) \div 120 + 1.25\ (\text{oz.})$$

Or as follows:

TOTAL ENERGY REQUIRED $40 \times 15 = 600$ CAL.
MILK ENERGY $1.5 \times 20 \times 15 = 450$ CAL.
BALANCE TO BE OBTAINED FROM SUGAR $= 150$ CAL.
THEREFORE SUGAR TO BE ADDED $150 \div 120 = 1.25$ OZ.

If we let E represent the energy quotient, e the energy obtained from the milk, and W the weight of the baby, then a general formula for calculating the sugar to be added would be:

$$\text{SUGAR} = W/120\ (E - e) \quad \text{or} \quad \text{SUGAR} = \frac{W}{120\ (E - e)}$$

3. *The Nutritive Ratio or Energy-Proteid Ratio.* Just as with the energy quotient, the energy-proteid ratio may be used as a check or as a basis of feeding. To use it as a check, we find the sugar equivalent of

the fat and carbohydrate in the food and compare with the proteid. For example, a baby is being fed a milk having the composition, fat 3, proteid 2, sugar 5.25. The fat and sugar are together equal to $3 \times 2.25 + 5.25$, or 12 of sugar. The energy-proteid ratio is therefore 12 to 2 or 6 to 1.

When one employs the energy quotient alone as a basis of feeding, then the energy-proteid ratio is an important check, but when one uses both the proteid and energy standards, this check is of less importance, for it is only when one is feeding the minimum proteid with the maximum energy or the maximum proteid with the minimum energy that he is in danger of giving a disproportionate amount of proteid.

By the following plan, which I devised, the proteid quotient and the energy ratio are taken as the basis on which the food to be given is calculated. At the same time a check can be kept on the energy by a very simple calculation. Instead of the nutritive ratio we take rather the ratio between the total energy furnished by the food and the energy furnished by the proteid it contains.

To illustrate by an example, in an ounce of cow's milk, assumed to contain 4 per cent. fat, 4 per cent. proteid and 4 per cent. sugar, the total energy is equivalent to that furnished by 0.17 ounce of sugar ($4 \times 2.25 + 4 + 4$), and the energy furnished by the proteid is equivalent to that furnished by 0.04 ounce of sugar. Then the ratio of the total energy to the proteid energy is 17 to 4 or 4¼. It is a simple matter to determine this energy-proteid ratio for any food of which the composition is known.

The product of the proteid quotient by the energy-proteid ratio gives the sugar value of the food in hundredths of an ounce. Instead of thinking in calories, it is more convenient to think of the energy in hundredths of an ounce of sugar. Our standard of 35 to 45 calories per pound of the baby's weight would in sugar units be 6/7 of these numbers, that is, 30 to 40. The energy quotient will then be obtained by simply multiplying the proteid quotient by the ratio, that is

$$E = P \times R \text{ or } PR.$$

An example will best illustrate the plan: A baby is one month old and weighs eight pounds. We desire to feed it a proteid quotient of 4, or one ounce of milk to the pound, and that the ratio shall be between 8 and 9, say 8¾.

It is to be understood that any ratio is to be tentative until we test whether such a ratio would give a reasonable energy quotient. Suppose, for example, we fix the ratio at 9. We know at once that the energy quotient would be 36. Now, remembering that our energy standard ranges in sugar units from 30 to 40, it may appear that it would be safer to start with an energy quotient of 35. Accordingly we reduce the ratio by ¼, making it 8¾. The data from which the calculations are to be made now stand thus:

Baby one month old, weight 8 pounds, proteid 4, or one ounce of milk to the pound, ratio 8¾. The energy quotient has already been determined:

$$E = PR = 4 \times 8\frac{3}{4} = 35.$$

The milk requires no calculation, being 1 ounce to the pound. To calculate the sugar, we reason as follows:

The sugar value of the food to be supplied is required to be 8¾ times the proteid. The sugar value of the whole milk is 4¼ times the proteid. Therefore we must add sufficient sugar value to make the difference between 8¾ and 4¼. The sugar to be added in this case is 4 $(8\frac{3}{4} - 4\frac{1}{4})$ for each pound, and therefore the total sugar to be added is $8 \times 4 \times (8\frac{3}{4} - 4\frac{1}{4})$, that is, $8 \times 4 \times 4\frac{1}{2}$, or 1.44 ounces, or a little less than 1.5 ounces.

The whole work may now be represented as follows:

BABY 1 MONTH; *W*, 8; *P*, 4 or *M*, 1; *R*, 8¾.
$E = 4 \times 8\frac{3}{4} = 35.$
WHOLE MILK $1 \times 8 = 8$ OZ.
SUGAR $8 \times 4 \times (8\frac{3}{4} - 4\frac{1}{4}) = 1.5$ OZ.

The following examples will illustrate how rapidly and easily these calculations can be made:

1. BABY 1 MONTH; *W*, 8 LB; *P*, 4 or *M*, 1; *R*, 8.
$E = PR = 32.$
WHOLE MILK $1 \times 8 = 8$ OZ.
SUGAR $WP\ (R - 4\frac{1}{4})$ OR $8 \times 4 \times 3\frac{3}{4} = 1.2$ OZ.

2. BABY 2 MO.; *W*, 10 LB.; *P*, 4.5 OR *M*, 1⅛; *R*, 8.
$E = 4.5 \times 8 = 36.$
WHOLE MILK $1\frac{1}{8} \times 10 = 11\frac{1}{4}$ OZ.
SUGAR $10 \times 4.5 \times 3\frac{3}{4} = 1\frac{3}{4}$ OZ.

3. BABY 3 MO.; *W*, 12½; *P*, 5; *R*, 7¾.
$E = 5 \times 7\frac{3}{4} = 39.$
WHOLE MILK $1\frac{1}{4} \times 12\frac{1}{2} = 15\frac{5}{8}$ OZ.
SUGAR $12\frac{1}{2} \times 5 \times 3\frac{1}{2} = 2.20$ OZ.

4. BABY 4 MO.; *W*, 13 LB.; *P*, 5; *R*, 7¼.
$E = 5 \times 7\frac{1}{4} = 36.25.$
WHOLE MILK $1\frac{1}{4} \times 13 = 16.25$ OZ.
SUGAR $13 \times 5 \times 3 = 1.95$ OZ., *i.e.*, 2 OZ.

The quantity of water or other diluent to be added to the milk is readily determined from the milk quotient. The weight times the milk quotient is the daily volume; from this, subtract the milk in ounces. In the first example above, assuming a milk quotient of 2.5, the total volume of food would be $8 \times 2.5 = 20$, and the diluent to be added would be 20—8=12 ounces—in general the weight times the milk quotient less the milk. The milk quotient, it is seen, runs from 2 to 3 and will average about 2.5.

ADVANTAGES OF THE SYSTEM.

The advantages of this plan over all others, it seems to me, are:

1. It is more comprehensive. There is absolute control of not only energy and proteid, but also of the ratio between these two. Other plans control the energy alone or the proteid and energy, as when my proteid quotient is used, but no other plan suggested controls the proteid, energy and ratio, enabling one to know at any time just what and how much he is giving.

2. It is easily changed to meet changing conditions of weight, age, etc., etc.

3. It is simple, and the calculations are extremely easy. Taking the three numbers representing the weight, the proteid quotient and the ratio, it is seen that one-fourth of the product of the first and second gives the amount of milk for the day; the product of the second and third gives the energy in sugar units, and the product of the first, second and third—lessened by the ratio of the food used—gives the sugar in hundredths of an ounce which must be added.

The numbers are all small and easily handled. The operations are reduced to one, that of multiplication, and the fractions, whether vulgar or decimals, are simple and in most cases can be handled without even the use of a pencil.

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THE CARDIOVASCULAR SYSTEM IN PROGNOSIS.

WITH SPECIAL REFERENCE TO LIFE INSURANCE EXAMINATIONS.

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Longevity is a vascular question, which has been well expressed in the axiom that "a man is only as old as his arteries." To a majority of men death comes primarily or secondarily through this portal.—OSLER.

Not only is cardiovascular disease the determining factor in a majority of deaths, but it is becoming a more and more important factor. Improved social conditions, the advances in modern medical science, particularly preventive medicine, are steadily lowering the general mortality from the infectious diseases, leaving a larger number to endure the effects of later wear and tear which are accentuated by the extraordinary stress under which the average American is living. This trend is a matter of common clinical knowledge, and statistical evidence on the point is most convincing.

A glance at the summarized table of the last census report[1] shows in recent years a practically steady increase in the cardiovascular diseases, and a notable decrease in the infectious diseases. This abstract shows increase and decrease for three main headings during the past six years. The + sign indicates increase, the — sign decrease. It is calculated for deaths per 100,000 of population.

General diseases (including epidemic, tubercular, typhoid, etc)	—52.6
Diseases of circulatory system	+25.1
Diseases of genitourinary system	+11.

The mortality statistics of the State of Massachusetts are the most reliable available, and are even more striking. The death rate per 10,000 population from typhoid and tuberculosis taken together, in decades from 1865 to 1905, is shown in the first column. In the second column is the percentage of deaths from heart disease, and in the third column from genitourinary disease.

	Typhoid and Tuberculosis.	Heart Disease.	Genitourinary Disease.
1875	41.1	8.06	3.08
1880	35.7	9.68	3.91
1885	34.6	11.97	5.90
1890	29.6	15.58	5.89
1895	24.6	15.01	7.43
1900	20.7	13.99	8.05
1905	17.5	18.45	8.53

Notice that the first decreases steadily from 41.1 to 17.5; the second increases from 8.06 to 18.45; and the third increases from 3.08 to 8.53.

When this tendency toward a diminution in infectious diseases and an increase in cardiovascular disease is so definite in general population statistics, we can be sure that it will be even more pronounced among lives selected for ordinary insurance.

The beneficial effects of modern sanitation and prophylaxis are particularly felt in this select class, which consists of our best social elements. Tuberculosis, typhoid, primary pneumonia, venereal disease, puerperal septicemia, violence, etc., largely spare these higher, more intelligent classes, to reap their richest harvest among the poor, the ignorant, and the vicious. Unfortunately, as regards cardiovascular diseases, the converse is true, namely, that these diseases have their strongest hold among the classes which feel the extraordinary strain of modern life most strongly.

Too often members of these classes avoid the dangers from infectious diseases only to encounter undue cares and responsibilities which overstrain the heart and blood vessels of brain and kidney.

It is well-known that the increase in vitality among insured lives is during the younger years, at which period infectious diseases are chiefly operative.[2]

It is not necessary to dwell longer on the increasing incidence of cardiovascular disease, for statistical evidence and clinical experience leave this indisputable. But it does seem highly important to emphasize the necessity for greater efforts in determining the presence of cardiovascular impairment in life insurance examinations. A large majority of rejections for cardiovascular disease are for endocarditis with acute articular rheumatism as the causative factor, and few are the notations of such impairments as arterial thickening and sclerosis, increased tension, cardiac hypertrophy without valvular disease, accentuated second sound, etc., often the only evidences of insidious trouble which may eventuate in apoplexy, acute cardiac dilatation, or nephritis.

Examiners apparently are too often satisfied regarding the cardiovascular system when there is no heart murmur and no irregularity or increase in rate of the pulse. A large proportion of the candidates for fatal cardiovascular disease within the next ten years do not at present show these gross symptoms, nor any albumin in the urine, yet a thorough, more detailed examination would reveal an unfavorable cardiovascular condition in the majority.

It may be proper here to define more exactly the broader sense in which the term cardiovascular disease is used in this article. Cardiovascular impairment is essentially protean in its manifestations, and the term "heart diseases," as returned in death certificates would include but a small proportion of diseases primarily cardiovascular in character. Especially in examining applicants for life insurance must we bear in mind the relation of cardiovascular impairment in the following diseases, and search for its evidence. Apoplexy is as much a cardiovascular disease as mitral insufficiency, and although the cerebral arteries are not available for examination, other portions of the vascular system are. A large number of chronic interstitial nephritis cases—probably a majority—are vascular in origin. Aneurism, arteriosclerosis, softening of the brain, chronic passive pulmonary and systemic congestion, dropsies, abnormally high tension, and lastly—probably the largest heading—the terminal infectious diseases in which an impaired, overworked cardiovascular system has created a condition of lowered resistance eagerly embraced by pneumonia, erysipelas, etc. How many of the deaths returned as pneumonia are primarily due to cardiovascular disease it would be impossible to estimate, but most clinicians would give a high figure.

The effects of an impaired cardiovascular system are operative in surgical cases also. Etherization, Trendelenburg's position, prolonged manipulation, are but poorly tolerated in the presence of impaired heart muscle, sclerotic vessels, or undue arterial tension. No general practitioner need have the difference in prognosis pointed out for the infectious diseases, such as typhoid, with or without cardiovascular impairment.

Longevity is indeed a vascular question. As therefore a sound unimpaired vascular system is a prime requisite for a normal life expectancy, we may profitably review

1. Mortality Statistics, 1903, p. 28.

2. Buchanan: Tr. Faculty Actuaries, iv, part 3, No. 37.

the points bearing on the abnormalities which may be developed by an insurance examination. That these abnormalities can be revealed by a proper, careful examination in a considerable number of cases, I think there can be no question, and the elimination of the worst of these applicants would produce a large saving in mortality under the primarily cardiovascular headings outlined above.

The careless general endorsement of applicants who have no coarse râles at the apices, no cardiac murmurs, and no albumin, is an undue expense to all life insurance companies. The statistics of one of our largest insurance companies show how indifferent the cardiovascular examination often is. For example: 7.26 per cent. of the total first-year mortality was from heart disease; 10.97 per cent. was from apoplexy, softening of brain, etc.; 3.55 per cent. from Bright's disease; or a total of 21.78 per cent. of first-year mortality was due to heart disease, apoplexy and nephritis; so that taking into consideration the chronicity of these diseases, it is not excessive to say that nearly one-fifth of the first-year mortality could be saved by a thorough examination. The mortality for typhoid, which could not be foreseen, is only 8.71 per cent. for the first year. The proportion of cardiovascular diseases is even a little higher for the second and third years. In the older entrants the mortality for vascular diseases is as great in the first year as in later years. It must be a very exceptional case for a man to be perfectly sound at the time of examination and die within the year of apoplexy, heart disease, or nephritis; yet experience shows that doomed men are passed constantly by medical examiners.

Competent examinations should practically exclude heart and arterial diseases, apoplexy, and nephritis from the first year's mortality, and should largely eliminate them from at least the first three years.

In the large cities, where competition for the position of examiner is more keen among well-trained reliable men, it is possible to have examinations which are more than such a superficial inspection, and good painstaking work is often obtained in smaller towns, but not so frequently. But in town and city a more rigorous search for cardiovascular impairment with a full account of all features in the case, would greatly enhance the value of the medical examination.

In the medical examination, cardiovascular impairment should be searched for along three main lines.

I. PERSONAL HISTORY.

First, the personal history of the applicant often lends a clue; a previous life of hard physical labor, undue mental worry, excessive use of tobacco, dissipation, gout, work in lead, that is, as painter, glass-worker, etc., all predispose to cardiovascular impairment, and should induce a more rigorous examination. The undue strain to which common laborers are subjected, taken in conjunction with their frequent unsanitary surroundings, have made them a prohibited class for ordinary insurance with most old-line companies. A heavy mortality is experienced among the successful business men past middle life, the financiers, the men who apply for the large policies. Too often financial success has been purchased at the cost of physical impairment, which most often takes the form of cardiovascular deterioration. This extra hazard is well recognized, and usually an alternate examination is required, frequently by a specialist in internal medicine, in an effort to detect these early changes. A report from such an internist of an accentuated second sound, an increased tension, a thickened radial, would bring a prompt rejection. Typhoid fever (Thayer), acute articular rheumatism, syphilis, and possibly other infectious diseases are important. A past history of chronic dyspepsia or indigestion should receive careful attention. There are definite cases of cardiovascular disease in which no etiologic factor is apparent other than the opportunity for intoxication from an unhealthy digestive tract. Furthermore, the beginning of serious trouble in heart or kidney may first be manifested by gastric disorder. Indigestion and dyspepsia are not as trifling as many apparently believe. In young entrants this weakness opens the door to infection, and in later life may be the signal of deeper trouble.

II. FAMILY HISTORY.

The tendency to early cardiovascular degeneration may undoubtedly to a certain extent be inherited. When several members of the immediate family have died before 65 of Bright's disease, apoplexy, or heart disease, we must think of the probable existence of such a tendency, and the applicant, especially if over 40, must be held under grave suspicion until the existence of cardiovascular disease has been eliminated.

III. PHYSICAL CONDITION.

While the personal and the family history give valuable suggestions to the examiner, the most important element in the examination is the present physical condition, which may reveal conditions totally at variance with a favorable history, or may lend valuable accessory evidence to a suggestive history, or, finally, may establish proper evidence of insurability in spite of a poor family or personal history. A comprehensive judgment as to the existence of cardiovascular disease is possible only if the medical examiner keeps this disease constantly in mind as a possibility in applicants over 35, first, with the prospective furnished by family and personal history, and then by a rigorous attention to the details of the physical examination, the general outlines of which, bearing on cardiovascular disease, I will briefly review.

Sex.—Males are much more subject to the various vascular diseases than females, as one would expect *a priori*. The more strenuous the life, the higher the tension, mental or physical, the rougher the usage, the sooner will wear become apparent. Any dangers that may be associated with the climacteric in the female are more than offset by the much graver dangers that may portend in the male between 40 and 50. Referring to the classical article by Brandreth Symonds,[3] it is seen that although the mortality at nearly every age is more favorable among females than males, yet the difference is most striking between 46 and 56, when the male mortality is nearly double that of the female. This is the decade when premature vascular changes become active.

Age.—At younger ages than 35 it is rare to find these degenerative changes, except the forms of infective endocarditis and the lesions of syphilis. The most frequent age of discoverable onset is between 40 and 65.

General Appearance.—This, though often deceptive, may lend a clue to the experienced. There is a facies which often seems to warn in these cases, less marked than in definite Bright's or aortic disease, and yet suggestive of some impairment—a strained look, perhaps

3. Am. Jour. Med. Sc., March, 1894.

best termed haggard, premature lining of the face, shadows under the eyes, a mixture of pallor and sallowness. A progressive loss of weight is particularly serious. Often, however, there is no indication in general appearance—the color may be good, the eye alert, expression vigorous. A subnormal temperature, that is, below 97.8, should be noted, as it is frequently associated with these degenerative changes.

Weight.—This is usually at normal or somewhat above, unless there has been a loss, which would in itself be a serious symptom. It may be that thin, more delicate men are unable to keep up the pace that kills, so that if they escape the infectious diseases in early adult life they are apt to outlive their more vigorous contemporaries. The racing proverb, "A lean horse for a long race," is often not inappropriately applied to delicate men who take proper care of themselves. Cases of extreme overweight are generally excluded from ordinary insurance, so they need not be considered.

Pulse and Arteries.—The pulse should be counted for a full minute, and care taken to note any tendency to intermission. An intermission, even though only occasional, in an applicant over 40, is important, and should be noted. It may be the only indication of myocardial disease. A rapid pulse, that is, over 90, may indicate muscular weakness. A very slow pulse, below 60, may indicate an abnormally high tension. A knowledge of incipient changes in the arterial wall is most important; as Dr. Osler has said of these cases: "The subsequent history is extraordinarily diverse, depending on the vascular territory in which the sclerosis is most advanced, or on the accidents which are so liable to happen; and the symptoms may be cardiac, cerebral, renal." The radial and temporal arteries should be carefully palpated to discover thickening or sclerosis. Ordinarily the radial is accessible, but in stout individuals the temporal affords a more favorable opportunity for palpation. Two or three fingers should be used, and an effort made to roll the artery under them. When the artery can be thus felt as a definite cord after the blood has been blocked, there is some change in the wall. Inspection of the pulse is often valuable. A visible pulse beat in the radial, unless the subject is very thin, should lead to careful investigation. Visible pulsation in the brachials or carotids is even more suspicious. It may indicate a thickened artery or a high-tension pulse, often both. A tortuous artery is always abnormal. At the same time an effort should be made to estimate the tension, though usually one's confidence in his ability to gauge tension is in indirect proportion to the frequency with which he has controlled his tactile measurements by the sphygmomanometer. Palpation judgments of tension are certainly most deceptive, and as this is the most important single sign indicated by the pulse, I do not hesitate to say that no cardiovascular examination in an applicant over 40 can be considered complete without a knowledge of the blood pressure as obtained by the sphygmomanometer. An observation can be obtained quickly and accurately, and should be a routine in applicants over 40. No physician can treat heart or kidney cases intelligently without the aid of a sphygmomanometer, and an examiner should be in a position to furnish blood-pressure readings as readily as the pulse-rate. It is far more important. A tension above 140 mm. Hg with a four-inch arm-piece is suspicious; over 150, most serious. Examiners are beginning to appreciate that a "strong pulse" is not always a recommendation. Such a "fine, strong pulse" may shortly successfully rebel at normal arterial restrictions.[4]

Heart.—Every cardiac examination should begin with a careful inspection, and the apex beat should be located, if visible. A presumptive diagnosis of cardiac hypertrophy can frequently be made by inspection alone. A diffuse, heaving impulse should be noted as differing from the usual localized beat. A thoracic aneurism can be easily missed if inspection without the shirt be neglected. Palpation establishes or confirms the location of the apex-beat, and the possibility of hypertrophy must always be entertained unless this is well within the nipple line. At the same time the presence of a thrill can be detected. An examiner who does not define by percussion, at least the left border of the heart, is certainly derelict. No more important evidence can be obtained from the examination than the correct knowledge of the extent of cardiac dulness. Cardiac dilatation and hypertrophy are by no means infrequent in older applicants, and are most serious conditions, constantly overlooked in hurried examinations. In the absence of a murmur, the most valuable evidence afforded by auscultation is an accentuated second sound over the base of the heart, particularly over the aortic area. This indicates increased tension in systemic arteries, and can be confirmed by the sphygmomanometer. The position of the apex can be confirmed by noting the point where sounds are heard loudest. It should be noted that sounds are not weakened or blurred, and especially that there is no roughening of the first aortic sound. The recognition of the ordinary murmurs of endocarditis are too elementary to need repetition.

Urine.—The relation between the circulatory system and renal secretion is an interesting one, and a careful urinary examination may give the clue to vascular disease. For example, with an increased quantity of urine of low specific gravity in a male over 50, there may be expected high tension, cardiac hypertrophy, thickened arteries, etc. A man over 50 who rises to urinate at night probably has prostatic hypertrophy, beginning interstitial nephritis, or cardiac hypertrophy, perhaps all three. The association of albuminuria and cardiovascular disease is a matter of common knowledge, and need only be mentioned in relation to substandard insurance, as in ordinary insurance the presence of albumin alone would dispose of the case; but in issuing a substandard policy to a man passing albumin, a knowledge of the condition of the heart, arteries, and blood pressure is of prime importance. Albuminuria without cardiovascular disease and with normal blood pressure is compatible with health for many years. With an equal amount of albumin associated with cardiac hypertrophy and a blood pressure of 200 mm. the case may eventuate at any time in apoplexy or acute dilatation.

SUMMARY.

The combined cardiovascular diseases constitute the largest element in general mortality, and are even more important elements in insured mortality.

The evidences of incipient cardiovascular disease are discoverable in many cases by careful attention to the details of the examination.

Greater care and thoroughness in this particular would produce a large saving in insurance mortality, especially during the first five years.

4. I have always used and found most satisfactory the instrument known by my name and first described in THE JOURNAL A. M. A., 1903, xl, 1199.

Clinical Notes

UTERINE TENACULUM.

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About two years ago I devised a tenaculum for work on the uterine appendages when the uterus was to be left in the abdomen, which has given me much satisfaction. The instrument is ten inches long, each point being three-fourths of an inch long, making the total distance of the opening between the points one and one-half inches long. The fundus of the uterus being caught with the instrument produces two small puncture wounds, and on account of the great distance between

Uterine Tenaculum.

the two arms of the triangle no trauma whatever is caused by pressure. The instrument is sufficiently long so that the assistant can support the uterus in a fixed position and yet have his hand out of the way.

The instrument is especially valuable in shortening the round ligaments and to suspend the uterus; in fact, in all operations where the uterus was not to be removed. The punctured wounds do not bleed and the trauma caused is insignificant.

SOME ATYPICAL SYMPTOMS IN GASTRIC CARCINOMA,

WITH REPORT OF A CASE.

C. E. TENNANT, M.D.
DENVER.

The time-honored group of symptoms for gastric carcinoma, which have long since become classic, are more often absent now that exploratory operations are common. When we do have the classical symptoms of cancer the case is usually beyond surgical relief. It is, therefore, the atypical case which should engage our attention, because in this group of stomach troubles we shall find those which may be relieved by early operation.

Frequently we find on opening the abdomen that surgery has been employed too late to benefit the patient. And in so many of these hopeless malignant cases there is found distinct evidence of an old ulcer on the base of which malignancy has been grafted, the constant irritation of hyperacidity with its attending pain and distress having converted a benign growth into one of malignancy.

As a rule the ulcer-bearing area is at the pylorus. When malignancy occurs here it is natural to expect, and clinically we find in a very short time after malignancy has commenced, that the glands secreting hydrochloric acid are involved and their function inhibited. The same is also true with regard to the mechanical function, this last disturbance being manifested by certain obstructive phenomena, as nausea and vomiting.

If, however, the malignant ulcer is well toward the cardiac end, certain symptoms, as achlorhydria and obstruction, may not be present. In fact it is quite likely that hyperacidity will prevail, attended with its characteristic pain after meals. That in all these cases the patients should be given the benefit of an early exploration is beyond question, especially after a brief but unsuccessful medical course has failed.

The sooner the medical man realizes this the earlier shall we be able to reduce the mortality in cancer of the stomach. He should be present in the operating room with every one of his patients on whom operation is done, and not only see but actually feel these old scars; then will he realize the chagrin with which the surgeon is obliged to close the abdomen, with the full knowledge that there has been a time when malignancy could have been averted.

When once the medical man has fully realized this fact of the lost opportunity for his patient, there will be fewer stomach resections, for a gastroenterostomy or a pyloroplasty during the time of a benign pyloric ulcer will divert the irritating foods and gastric juices sufficiently to allow of healing before malignancy occurs. When the ulcer is near the cardiac end, accessible and of any considerable size and depth, a total excision of the indurated mass, with a goodly margin of normal tissue, will do much to prevent the possible malignant development.

Recently Crile has been experimenting on a method for testing the blood in cases of suspected malignancy, it being presumed that the blood of a cancer patient possesses certain hemolytic properties. So far Crile reports[1] about eighty cases, in 80 per cent. of which the test has proved positive. If this method proves reliable there will be little or no excuse for gastric carcinoma reaching the inoperable stage.

Until the laity can be taught to realize the significance of early digestive disturbances, and that indigestion is the signal for medical counsel, we must expect a certain number of hopeless cases drifting in after the advertised cure-alls have been exhausted. As with tuberculosis, there should be an aggressive campaign carried on with the public, so they may not drift into these malignant conditions unwarned.

It is without doubt true that gastric carcinoma is as amenable to treatment (either by early dietetic, hemolytic or radical means) as is tuberculosis, but that mortality from malignancy is on the increase, present statistics would seem to prove. A case which recently came under my care will best illustrate the atypical type, an ulcer case which drifted into an inoperable gastric carcinoma:

Patient.—Mrs. M. F., aged 59, resident of Oklahoma, housewife. Family history negative. A son, aged 29, died with a recurrent epithelioma of the lower lip about five years ago.

History.—The patient had always had good health until about eighteen months ago, when severe pain occurred in the epigastrium two or three hours after meals. She had never had nausea, vomiting, hematemesis or bloody dejections. Her usual weight had averaged about 150 pounds; present weight, 111 pounds. She had borne eight children, deliveries being normal. During the past five months she had been extremely limited in her diet, owing to the severe pain which occurred two hours after each meal. This was accompanied with considerable acidity which alkalies relieved.

1. Crile, George W.: The Cancer Problem, THE JOURNAL A. M. A., June 6, 1908, l, 1883.

Examination.—The patient presented a wasted appearance. Her skin was rough and shrunken, with a suggestive cachectic hue. There were no enlarged cervical, axillary or inguinal glands. The abdomen showed a bulging in the left upper quadrant about three inches to the left of the median line. There was a well-defined tumor apparently adherent to something; it did not feel nodular, but was very tender, and measured about 5 by 7 cm. A test breakfast of toast and tea gave a total acidity of 40, hydrochloric acid 22.5. Although seeds had been given the previous evening, none were present in the siphoned stomach contents, and the total quantity removed after fifty minutes' digestion did not exceed an ounce. When the stomach was dilated with a Seidlitz powder the lower border did not show a downward displacement, nor did the gas give her distress. Dr. J. N. Hall, seeing the case with me, gave a tentative diagnosis of early malignancy, probably on an old gastric ulcer, and an exploratory operation was advised and accepted.

Operation.—At St. Joseph's Hospital, June 20, 1908. Median incision in upper abdomen. The pylorus was unobstructed, and there were no adhesions anywhere about this end of the stomach or the gall bladder. A number of glands about the lesser curvature were indurated and the greater curvature of the stomach was adherent to the parietal peritoneum for about 7 cm. from the Mikuliez-Hartmann line toward the cardiac end. The adhesions were from the mass, which was decidedly nodular; as large as a goose egg, and involving both the anterior and posterior surface of the stomach. To the pyloric side of this mass was a well-defined circular cicatrix which merged into the malignant tumor, thus showing conclusively its origin on the base of an old gastric ulcer. As there was no obstruction to the pylorus, and the tumor extended so far to the left (requiring practically a total gastrectomy) and in view of the associated glandular enlargement about the lesser curvature, it was considered to be an inoperable case and the abdomen was closed with silkworm sutures.

Postoperative History.—The patient was up in a chair in five days and out in a week, and is now eating more heartily and relishing her food better than she has for the past two years. This result has been accomplished by giving her the natural Carlsbad salts before meals, thereby reducing the hyperacidity and provoking several free evacuations daily. Recent reports (October 1) are that she has no pain from hyperacidity, is gaining in weight and eating well. There is, however, the early appearance of inguinal adenitis on the right side. This I believe to be one of those lost opportunities previously referred to, for had she been given the benefit of an early exploratory operation eighteen months ago, an excision of the ulcer-bearing area would no doubt have spared her the present hopeless life as a victim of malignant disease.

BELLADONNA POISONING.

IRVING WILSON VOORHEES, M.S., M.D.
NEW YORK.

Patient.—May 27, 1908, I was called to see W. B., male, aged 29.

History.—The patient complained of impaired vision and felt certain that he was becoming blind. The difficulty had increased progressively for twenty-four hours, during which time he had been unable to read written or printed matter; he had also been obliged to give up his work at his office. Previous to this he had been well except for a slight pain in his right side and declared that he had not taken medicine of any kind for a year.

Examination.—Both pupils were greatly dilated. They were equal in size but did not react to either light or accommodation. The eye-grounds were normal. The mouth and throat were dry and parched; the pulse was rapid and irregular and the skin dry like parchment. The patient was very nervous and seemed greatly worried about his condition. In reply to questions he stated that for several days he had been wearing a porous plaster on the right side because of a "stitching pain in the liver," and that he had also rubbed this area with a "patent medicine" for two days before applying the plaster.

Treatment.—The plaster was removed with some difficulty; the true skin was exposed beneath the plaster and for some distance around it. I prescribed physostigmin sulphate for the eyes and gave morphin sulphate, ¼ grain, hypodermatically. The patient was put to bed and was well in twenty-four hours.

I am told that the condition is not at all uncommon, but I have never seen it reported.

3544 Broadway.

A NEW STYLE TONSIL FORCEPS.

ERNEST MORAWECK, M.D.
LOUISVILLE, KY.

The advantages of the instrument here shown over other similar instruments are as follows: The blades or teeth are so constructed that they grasp a considerable portion of the tonsil, but do not tend either to crush off or tear out the grasped portion; consequently, having once engaged the tonsil they remain in place from the

Fig. 1.—Tonsil forceps ready for use.

beginning to the end of the operation, even in case of a very friable tonsil. The extreme lightness of the instrument, its small size, and the bend of the handles insure its remaining in position throughout the operation without either dragging unduly on the tonsil by its weight, or interfering with the manipulations of the operator. Scissors, knives or dissecting instruments of any kind may be used around it with the greatest ease. It interferes in no way with the patient's comfort.

A tonsillotome or the loop of a wire snare, no matter how small, can always be introduced over it, either over

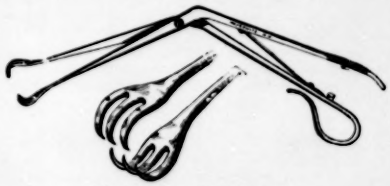

Fig. 2.—Details of tonsil forceps

the whole finger-end at once, or, in case of a very small loop, by introducing it through and around the open handle of the instrument. In the latter case, it is only necessary to bear in mind the position the loop of the snare will occupy after it has made the complete turn that will, of course, result from its introduction in this manner.

A more secure hold on the tonsil usually can be obtained by introducing the instrument diagonally across the tongue; that is to say, for the right tonsil the forceps should be introduced from the left side of the mouth, and vice versa. Once, however, the tonsil is grasped

by the prongs of the forceps, the instrument can be either manipulated or allowed to hang in the most convenient position.

External counter-pressure in case of submerged tonsils is often a distinct advantage in enabling one to secure a firm hold on the tonsil.

The blades of the instrument are instantly released by a pressure on the spring catch with the thumb of the hand holding it.

This instrument is made by E. B. Meyrowitz, New York.

COMPOUND, COMMINUTED FRACTURES OF ALL THE MAXILLARY BONES.

F. E. CLOUGH, M.D.
LEAD, S. D.

Patient.—J. L. M., aged 27, an American, fell over an embankment thirty feet high, striking on his face in a pile of rocks.

Injuries.—The inferior maxilla was fractured obliquely just to the middle of the body; there was no displacement of the fragments and but little mobility. In the left superior maxilla the line of fracture extended from between the lateral incisor and canine teeth backward through the hard palate to the horizontal plate of the palate bone, then outward to the pterygoid process and then forward above the base of the alveolar process to the incisor tooth, opening up the antrum of Highmore and lacerating the tissues badly. This large fragment was very loose and hung by periosteum only against the lower jaw. The alveolar process of the right superior maxilla was fractured at its base from the lateral incisor to the pterygoid process. The fragment was slightly depressed and movable, though the antrum was not opened. The intermaxillary bone was fractured into two pieces so that the two right incisors were knocked out, and the two left incisors were very loose. There was an oblique cut through the lips, extending along the left side of the nose and down onto the chin. The patient had always had about one-half inch protrusion of the lower jaw and could not normally bring the incisor teeth together. At first sight this gave the appearance of an anterior dislocation of the lower jaw.

Treatment.—The difficulty in treatment was to rebuild the alveolar arch and at the same time bring the fragments against the body of the bone. A silver wire was looped around the canine teeth of both superior maxillæ and made to include the two loose incisors; this brought the arch in good apposition. In order to hold up the depressed portion of the left superior maxilla a silkworm suture was looped around the canine tooth beneath the silver wire; the ends were sutured through the periosteum of the malar bone, brought out through the skin over that bone, and tied over a piece of rubber tubing to prevent cutting. In order to maintain the proper degree of tension a small rubber band was stretched between the silkworm suture and an adhesive plaster strip on the forehead. A similar procedure was used on the right side. This method was adopted only as a temporary measure until an interdental splint could be constructed, but it worked so satisfactorily without any cutting of the skin or inconvenience to the patient that no further measures were necessary. Drainage was put in the left antrum, the wounds sutured and a split tail bandage used for holding the inferior maxilla.

Convalescence.—No complications developed and there was an uneventful recovery. At the end of a month the superior maxilla of the right side and the inferior maxilla were solid, while the intermaxillary portion and the left side were slightly movable. The silkworm sutures were removed at this time and the silver wire was removed two weeks later when union was complete. The man returned to work at the end of the second month with no deformity of the upper jaw remaining.

ABSCESS OF THE NASAL SEPTUM, PROBABLY DUE TO ANTHRAX INFECTION.

J. G. PARSONS, M.D.
SIOUX FALLS, S. D.

Patient.—John H., aged 30, whose previous health had been excellent, on August 15 consulted Dr. Haberman of DeSmet, S. D., about his nose, which was sore and red on the tip. He gave a history of having felt ill for a few days previous, but had continued his work.

Clinical Course.—The doctor could discover no abrasion and nothing was done. On the following night, however, he was called to see the patient, whom he found suffering severe pain, with a general headache, more especially in the vertex. His temperature was 102.5, his nose swollen full and very sensitive to touch. The patient was greatly prostrated. He was given acetanilid and camphor monobromate, which relieved the headache and caused him to sweat profusely. On the 18th the temperature had dropped to 101, where it remained for the next ten days. On this day I was called and found the patient suffering intensely, with very marked swelling of the nose and fulness indicating abscess of the septum. The pain was so intense that the application of powdered cocain to the mucosa seemed to have little or no effect.

Operation.—Accordingly, while three men held him, I made a free incision on either side of the patient's septum with a cataract knife. A quantity of sanguinolent pus discharged, relieving the tension and easing somewhat the pain in the head. During the next ten days Dr. Haberman opened the abscess six times, evacuating a bloody serum each time. The wound showed a marked tendency to close. No packing was used, and an occasional irrigation with a weak, antiseptic solution was given.

Microscopic Examination.—On the 22nd smears were made of the secretion and examined by Dr. Haberman and his colleague, Dr. Dyar. These smears showed morphologically characteristic anthrax bacilli. Unfortunately, no cultures were made, but the doctors report the microscopic appearance to be unmistakably that of anthrax. No pus cocci were found.

Sequelæ.—During the course of the disease the patient developed two bullæ on the back of the hand, having received the infection when wiping his nose. The discharge was identical with that from the nose. These bullæ were opened immediately and cauterized with pure carbolic acid, but continued to discharge for about eight days. The discharge from the nasal wounds continued for about a month, and gradually disappeared, the patient making a good recovery without destruction of the septum.

Therapeutics

HYPNOTICS III.

PARALDEHYD.

Paraldehyd is a colorless liquid, pungent, irritant, and of a disagreeable odor. While theoretically it should be a stimulant and its action resemble that of alcohol, practically it is such a strong narcotic and hypnotic that its soporific and prostrating effects overcome any stimulant action that it possesses. Its action on the skin would be irritant, especially if its rapid evaporation were prevented. On mucous membranes it causes burning, and if not well diluted irritation and even inflammation. It is so active in this respect that it is even difficult to swallow it into the stomach without choking unless its evaporating and burning properties are held in check by iced water. It is so rapidly absorbed from the stomach that its effect is sometimes almost instantaneous. The heart is quickly stimulated, the pulse bounds and throbbing is felt in the head and arteries of the neck similar to that produced by a large dose of a nitrite.

and the patient becomes momentarily dizzy and later faint. The dizziness is due to an increased cerebral circulation, while the faintness is probably due to the dilated blood vessels of the body causing slight cerebral anemia. An uncontrollable desire to sleep quickly develops and the patient may be sleeping soundly in five or ten minutes. How much of this sudden sleep is due to an actual narcotic effect on the brain, and how much is due to an anemia of the brain caused by a rapid dilatation of the blood vessels of the body, has not been determined. On account of the stimulant effect on the heart and the lack of any profound nervous poisoning from the drug, even large doses have not produced death, although frequently the first symptoms from paraldehyd are so intensely disagreeable and disturbing to the patient that he or she will refuse to ever take the drug again. Large doses, however, can produce a condition of unconsciousness from which the patient, at least temporarily, can not be aroused.

It is excreted mostly in the urine, but considerably by the lungs, and imparts a disagreeable odor to the breath for some hours after the patient awakens.

The sleep caused by paraldehyd is not protracted, and with a therapeutic dose is normal, and the patient awakens without any prostrating effects. It is a hypnotic to which the system becomes used, and larger doses are required to produce sleep; also a paraldehyd habit can be formed, the patient not only learning to need a hypnotic, but craving the stimulation which paraldehyd causes. It seems to have a greater action in a smaller dose in young patients than in those that have a high blood pressure; in other words, patients who can stand a large dose of nitrites without discomfort will require a large dose of paraldehyd to produce sleep. It is not analgesic, and except in large doses will not relieve pain, and if the pain is severe its hypnotic action would be counteracted unless the dose were excessive. In weakened conditions of the heart it is a safer hypnotic than chloral, and is used frequently in the delirium of serious illness, as pneumonia and typhoid, but not always successfully. It is so likely to disturb the stomach in serious conditions that generally it should not be used. It is frequently used as a hypnotic in delirium tremens, and probably acts satisfactorily in this disease through its various activities, i. e., the throat and stomach irritation is satisfactory to the alcoholic patient, the stimulation of the heart is not unlike that of alcohol, and if the dose is sufficient it may produce the much desired sleep.

If a poisonous dose has been taken, or if unexpected intense action is developed from a therapeutic dose, the treatment would be that of a narcotic depressant poison and similar to that of chloral. An emetic should be administered if the patient is seen soon after ingestion of the drug. The body should be kept warm with dry heat, and hypodermatic injections of strychnin, camphor and adrenalin solutions should be given. Atropin could be used if deemed necessary.

The official preparation is Paraldehydum, and the dose is 2 c.c. or 30 minims.

Various menstrua have been suggested in which to administer this disagreeable drug, but there is no menstruum better than iced water, as:

R.	c.c.		
Paraldehydi	50	or	fl.℥ii

Sig.: A half teaspoonful on cracked ice and water at bedtime.

Ordinarily when this drug is administered the patient should be already in bed and the room quiet and prepared for sleep.

It may also be administered as follows:

R.	c.c.		
Paraldehydi	50		fl.℥ii
Glycerini	25	or	fl.℥i
Aquæ, ad	100		ad. fl.℥iv

M. et sig.: A teaspoonful, in plenty of water, at bedtime.

The National Formulary recognizes an Elixir Paraldehydi, the dose of which is 8 c.c. (2 fluidrams), which represents 2 c.c. (30 minims) of paraldehyd. The ordinary dose is two teaspoonfuls, administered in plenty of water.

BLEPHARITIS.

Dr. Aaron Brav, Philadelphia, in the *Therapeutic Gazette*, August, 1908, discusses the treatment of this troublesome condition. While this inflammation may occur at all ages, it is most frequent under the age of 20. Unhygienic surroundings seem to predispose to it, and errors of refraction are, of course, the most frequent cause. Occupations which call for close eye work with insufficient light predisposes to the condition, again a species of eyestrain. Consequently it is useless to inaugurate treatment of blepharites until errors of refraction are corrected by glasses or the use of the eyes with improper light is prevented.

There are various grades of this inflammation, viz., "simple hyperemia, squamous blepharitis, pustular blepharitis, and eczematous blepharitis." The hyperemic variety will soon be cured by glasses, if they are needed, and the correction of habits that are debilitating, and the improvement of unhygienic surroundings. The squamous variety often leads to recurrence of sties and is likely to be associated with some "conjunctivitis, constitutional dyscrasia, nasopharyngeal disease, and perhaps obstruction of the tear duct," all of which should be corrected while the disease itself is locally treated. The ulcerative or pustular form of the inflammation is tedious of recovery and if not treated early tends to cause "ectropion or eversion of the puncta." The eczematous variety is likely to be associated with eczema on other parts of the body, especially the face and scalp.

Unless the patient is over 40 it is unsatisfactory to attempt to correct errors of refraction without a cycloplegic, as atropin or homatropin. Most patients also need a sedative lotion for the eye, as there is so likely to be a coincident, though mild, conjunctivitis. For such inflammation Brav recommends the following eye wash:

R.	gm. or c.c.		
Acidi borici	2		3ss
Zinci phenosulphonatis	15	or	gr. ii
Aquæ camphoræ	15		fl.℥ss
Aquæ destillatæ, ad	100		ad. fl.℥iii

M. et sig.: Bathe the eyes with this solution, three times daily.

Also efficient is the following used as eye drops:

Acidi borici	25		gr. v
Aquæ camphoræ	15		ad. fl.℥i
Aquæ destillatæ, ad	25	or	fl.℥v

M. et sig.: Place two or three drops in each eye three or four times a day.

Brav believes that massage of the affected lids is a very important therapeutic measure and is best done with the aid of an ointment, and he prefers lanolin (adeps lanæ hydrosus). Gentle massage made by horizontal stroking movements on the closed lids with the index finger, carried from the inner to the outer angle of the palpebral fissure, and lasting from three to five minutes, relieves venous congestion and stimulates the activity of the lymphatics, and absorption of inflammatory products is increased. This ointment, or vaselin if preferred, will soften the scales and allow them to be re-

moved, thus aiding in getting rid of the blepharitis. Such massage is best done at bedtime, when some of the ointment may be left on the lids. In the morning the ointment may be washed off, and with it will come many of the scales. The yellow oxid of mercury seems to be a most valuable medicament for healing the lesions of this inflammation. It may be ordered as follows:

R.	gm.		
Hydrargyri oxidi flavi	10		gr. i
Olei olivæ, q. s.		or	q. s.
Petrolati	10		3ii

M. et sig.: Apply at bedtime as directed.

This makes 1 per cent. of the yellow oxid of mercury. It should be remembered that the official yellow oxid of mercury ointment is 10 per cent.

Brav believes that in some cases salicylic acid ointment has a more favorable action, especially when there is much itching of the lids, as:

R.	gm.		
Acidi salicylici	15	or	gr. ii
Adepis lanæ hydrosi	10		3ii

M. et sig.: Apply as directed.

If the itching is very marked Brav uses a tannic acid ointment, as:

R.	gm.		
Acidi tannici	15	or	gr. ii
Petrolati	10		3ii

M. et sig.: Use as directed.

Occasionally he uses cocain as follows:

R.	gm.		
Acidi tannici	15		gr. ii
Cocainæ	10	or	gr. i
Petrolati	10		3ii

M. et sig.: Use as directed.

If the tannic acid preparations cause irritation they should be discontinued. If the itching persists, the dried secretion in the little glands should be carefully expressed from the ducts.

The general condition of the patient should always be investigated and, if necessary, corrected. Proper food should be given, the bowels should be regulated, and any tonic that is needed—especially iron—should be administered. Hot water applications to the eyelids may be necessary to get rid of the crusted secretions and to relieve congestion; also diseased cilia should be removed, especially in the pustular type of the inflammation.

Sometimes Brav finds it necessary to stimulate a sluggish process with a 1 per cent. solution of nitrate of silver.

Of course syphilitic or rheumatic patients should receive the treatment called for by the systemic condition.

THE OIL RUB.

The almost forgotten advantages of anointing the body with oil is brought to our notice by the *Dietetic and Hygienic Gazette*, September, 1908. The practice of anointing the body with oil goes well back into ancient history, and is still practiced by the natives of Africa, Samoa and the South Sea Islands.

The body should first be bathed with warm or tepid water, dried, and the oil then applied; it should not be applied to the dry, unwashed skin. The oil should, of course, be pure and clean, should be well rubbed into the skin, and any surplus should be removed with a soft towel. Some knowledge of massage is necessary to a successful oil rub, and the rubbing should not be sufficiently vigorous to cause perspiration. The best oil for this purpose is pure olive oil, cocoanut oil or palm oil; cottonseed oil may be used. Animal fats do not make an ideal oil rub.

In temperate climates it is probable that the main advantages from such anointing is due to the massage; in other words, the circulation of the skin is improved, the muscles are cleansed of excrementitious products by such debris being forced into the lymph circulation, and the blood flow through the muscles is improved. The oil rub has also a good therapeutic use when the skin of the patient is always dry and scaly. Such people probably do not have a normal secretion from the thyroid gland, but whatever internal medication is deemed advisable, the oil rub will add to the improvement of the skin condition.

In tropical countries the oiled skin radiates heat more rapidly than the dry skin when little or no clothing is worn. On the other hand, in cold countries where much clothing is needed the oiled surface of the body keeps the body warmer. It also seems to be a fact that after hot bathing a patient who catches cold readily has less liability to chilling if an oil rub is given.

Locally, oil rubbing may be used, after hot bathing, for cold feet or cold legs, and the feet of such patients will remain warm longer than without it.

Although it has been stated that oil may be rubbed into the body so as to increase nutrition and that weakly patients, especially infants, will improve, it is still a question if it is not the general toning up of the circulation, the equalization of the circulation, and the prevention of flabbiness of muscles, in other words, the effects of the massage, that are the real cause of the improvement in the general condition.

THE SCOTCH RUB.

The *Dietetic and Hygienic Gazette*, September, 1908, calls attention to this method of obtaining a better circulation in the skin as described by the *British Journal of Nursing*. It is applicable to patients to whom a cold water rub is unpleasant, and consists in washing a part of the body with hot water, not too hot, and then rubbing with cold water, with a towel. "If under such applications the skin slowly reddens or stays pale and the skin muscles are contracted, it means an abnormally high excitability of vessel innervation." This condition is found in anemia and in some feverish conditions. "A livid redness of the rubbed area means circulatory insufficiency," while a slow rewarming or continued coolness of the treated area in high fevers "is suggestive of a pending circulatory collapse." The advantages are that the friction is a mild stimulant and causes the rubbed area to radiate heat normally, while it also increases evaporation.

The advantage is that this method is pleasanter to most patients than the cold sponging done to reduce the temperature, and while not tending to lower temperature immediately as well as does the typical cold sponging, it does tend to keep the surface of the body in a healthy condition and causes the skin to give off heat rather than to retain it.

Diagnostic Blood Findings in the Fourth Disease.—Leon states that it is easy to differentiate the so-called "fourth disease" or "Duke's disease" from measles and scarlet fever by the striking hypoleucocytosis and mononucleosis. He gives some comparative tables showing the average findings in a recent epidemic; a glance through the microscope at a drop of blood will confirm the diagnosis and exclude measles and scarlet fever. His communication is published in the *Semana Medica*, July 30, 1908.

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[*For other information see second page following reading matter*]

SATURDAY, NOVEMBER 14, 1908.

RESEARCH AND MEDICINE.

"Research signifies effort directed toward the discovery of laws and principles through the systematic collection of new and better correlations of existing data. It means the utilization of hitherto latent or wasted energy. The aims of research are not culture, not miscellaneous information, not a mode of leisurely meditation on the origin of things, but mainly utility and service to mankind."

These statements by Theobald Smith, while general, apply especially to research in the field of medicine. Research is too often considered as peculiarly difficult, requiring unusual and special qualifications and only to be indulged in by a certain few whose sole ambition is to gain fame by making some important discovery. This is by no means true. The methods are straightforward, natural, simple, common-sense methods, but complete, thorough, orderly and precise. Research is work in which absolute honesty is demanded on every hand, for lacking this its very purpose is defeated.

The great discoveries and generalizations in science and medicine have been made usually after years of systematic and conscientious labor. As a rule they evolve rather than flash into existence in a moment. Twenty-three years elapsed from the time Darwin first published notes on the evolutionary theory till it emerged in its complete form — "The Origin of Species." It is said that Bacon delayed the appearance of the "Novum Organum" for twelve years, and each year added something. Harvey withheld the publication of his views on the circulation for twelve years.

All research profits and is made possible by work that precedes it. This work may be of little significance and of no practical value in itself, but taken in relation with other facts it may help to solve the most mysterious and difficult problems and be of the greatest practical importance. It is never safe to predict in regard to the significance of facts. There is only one safe method and that was used by Darwin, namely, to note every detail carefully, feeling sure that in the final causal interpretation of phenomena each and every one of these details will find its place and there be of great significance. The question is too often asked: Of what use is this or that piece of work? If the practical side is not clearly evident the whole is considered a waste of time and worthless. The important questions to ask are: Is it true? Are these statements of facts? Are these true principles? If so, the work is amply justified. Of course there is a scientific perspective. All facts are not of equal importance. Some stand prominently in the foreground; others are mere subsidiary detail; but in the final picture, in the complete interpretation, all are essential.

At present many physicians look on the work in the laboratory as scientific because certain phenomena are here more carefully analyzed perhaps than seems possible in a clinic or at the bedside. But the spirit of true practical medicine is scientific. Its aims are utility and service to mankind. Facts are being observed and correlated and their meaning determined. The apparatus may be different, but the methods are fundamentally the same as those of the laboratory. Why should an accurate physical examination of a patient be less scientific, for instance, than the chemical analysis of the blood or observations on the biology of the tubercle bacillus? The ultimate aim is the same, and though the end in view in the former is more immediate than in the latter the difference is not such as to justify calling one scientific and the other non-scientific. Scientific medical research must not be confined altogether within the walls of the laboratory; a large part of it must necessarily be done there, for medicine draws on the more fundamental sciences for aid, and this requires more or less elaborate laboratory facilities. What is desired is the greater use by physicians at the bedside of the general methods in vogue in scientific laboratories, where are demanded careful observations, painstaking analysis, logical reasoning, accurate and systematic records.

"No great discovery in science is ever without a corresponding influence on medical thought, not always evident at first, and apt to be characterized by the usual vagaries associated with human effort" (Osler[1]). Laboratory workers and practicing physicians should come nearer together and attempt to understand each other better. Often pure scientists and experimenters are inclined to be radical, sometimes impractical, and liable to be carried away by fanciful theories. And sometimes they are justified in letting their imaginations soar to heights which physicians perhaps dare not attain; this not infrequently leads to valuable working hypotheses that may bring forth important facts.

On the other hand, the scientific man, the laboratory worker, should realize that physicians must have at least one foot on solid ground; they must be conservative yet tolerant of new ideas, always willing to consider and apply them in legitimate ways; they must be sympathetic toward the new, knowing that in time the grain will be sifted from the chaff and truth appear.

1. The Growth of Truth. Harvelan Oration, London, 1906.

HONORS TO A PHYSICIAN INVENTOR.

During October of this year specialists gathered in Paris from all over the world to discuss at an international congress of the refrigerating industries the scientific and practical problems connected with that subject. At that congress Edmond Carré, a French scientist, was acclaimed as the inventor of the first practical ice-making machine; but there seems to be no doubt that this glory really belongs to Dr. John Gorrie, a native of South Carolina.

The last number of *Uncle Remus's Home Magazine*[1] contains an account of Dr. Gorrie, about whom one would gladly know more. He is said to have been one of the foremost practitioners in the south in his day, and to have made many valuable contributions to medical literature, although he died in 1855 at the comparatively early age of 52.

The point in regard to Dr. Gorrie's invention which does him most honor is that it was made for the comfort and welfare of his fever patients. In 1845, when Dr. Gorrie was practicing in Apalachicola, that town, though the most important Florida seaport, being the outlet for all the cotton grown in the Chattahoochee valley in Georgia and Alabama, was seriously hindered in its growth by the prevalence of various fevers in the summers. Dr. Gorrie found it almost impossible to treat fever patients successfully during the hot weather. He realized that cooling the patient's room would undoubtedly be of benefit, and he, therefore, set himself to devising various methods of cooling air and water. In 1850 he succeeded in producing small blocks of ice about the size of the ordinary building brick. A French cotton buyer, M. Rosan, residing in Apalachicola, saw the machine in operation and induced the inventor to give a public demonstration at the leading hotel. Ice made with the machine, which was placed on a table in the dining-room, was served to all those present at a banquet. M. Rosan later returned to Paris and is known to have been in intimate association with M. Carré, whose process of making ice was not perfected until 1855. There seems no doubt then that the Frenchman was spurred to renewed efforts, if not actually prompted to the idea of his invention, by the news of the successful experiment made by the American physician.

When the patent was issued for Dr. Gorrie's ice-making machine northern newspapers made great fun of it, because the natural supply at the north was so bountiful that no one could possibly think that ice would ever become sufficiently valuable to render its manufacture profitable. There is scarcely any need to say how utterly wrong this forecast was, and how much artificial refrigeration has come to mean for sanitation and hygiene in ways undreamed of then. It seems not unlikely that if the pollution of our streams and lakes goes on considerations of public health will forbid the sale, at least in our large cities, of any ice except that made from distilled water or that gathered from carefully protected bodies of water.

In recognition of his splendid original work a monument to Dr. Gorrie has been erected in Apalachicola chiefly at the expense of the ice manufacturers of the south. There is now under way in Florida, we understand, a movement to place a statue of this pioneer inventor in one of the niches alloted to that state in the National Hall of Fame. Not only Dr. Gorrie's native and adopted states, but the whole south—indeed, the medical profession of the entire country—should be interested in securing for this devoted physician and neglected inventor the distinction that he deserves as a scientific student of medical problems, working for the benefit of his patients and devising a great sanitary invention calculated to be of ever-increasing benefit to humanity.

1. November, 1908.

RESISTANCE OF TUMOR CELLS, EMBRYONIC TISSUE AND ORGANISMS TO FREEZING.

In the last few years investigation of tumors has made considerable progress chiefly through experimental work on animals. The fact that animal tumors, especially in mice and rats, can be reproduced almost at will has afforded an excellent field for studying their nature and growth, and a large amount of interesting data is at hand. Several British observers—Moore, Walker, Barrat—claim to have shown that mouse cancer tissue is capable, even after being frozen, of producing tumors of the same character as the original. The explanation suggested is that the cells themselves are killed by the freezing and that a causal virus, possibly a bacterium or trypanosome, resists the low temperature and later stimulates proliferation of cells in the inoculated animal. Gaylord[1] in this country has repeated this work and added some facts of interest. His aim was to compare the effects of freezing by means of liquid air on transplantable mouse cancer, embryonic tissue, and trypanosomes. He found that while the percentage of growths of transplanted tumors after freezing was much reduced and the growth much slower, still in a certain number of cases the tumor cells multiplied and, even after eighty minutes' exposure, produced tumors identical with the original.

It is known that embryonic tissue when inoculated under the skin of an animal of the same species will continue to proliferate for weeks or months, then finally degenerate and become absorbed, never producing a permanent and constantly growing tumor. Inasmuch as the work concerning the nature of tumors centers around the problem of growth of cells, and in view of the fact that Ribbert's theory of the growth of misplaced tissue is a commonly accepted theory of the cause of tumors, the results obtained by Gaylord with

1. Journal Inf. Dis., 1908, v, 443.

transplanted frozen embryonic tissue are of interest. He found that such tissue gave no sign whatever of proliferation in marked contrast to the transplanted tumor tissue. The biology of these two types of cells in this respect at least appears to be distinctly different.

It is well known that many bacteria are not killed by exposure to the temperature of liquid air for considerable periods of time. Gaylord shows, too, that *Trypanosoma gambiense* is more resistant to low temperatures than embryonic epithelium, not being killed by exposure to a temperature of liquid air for twenty minutes; forty minutes' exposure, however, is fatal. These facts would seem to suggest that the cause of tumors may be more closely associated with the presence of some form of infection than with purely proliferative or embryonic processes; but at the same time it should not escape consideration that the tumor cells of themselves may be more resistant to cold than normal embryonal cells. The facts cited, while interesting and important, are not sufficient to force us to adopt a microbic theory of cancer. Indeed it is not a bit stranger that tumor cells should survive freezing than that certain bacteria and trypanosomes do so.

THE CHECKING OF EPIDEMIC DISEASES.

The conclusions relative to the checking of epidemic diseases drawn by Health Commissioner Evans in a recent number of the Chicago Weekly Health Bulletins are as scientific as they are sensible and sententious. They resolve themselves into the following propositions:

Every case of contagious disease results from somebody's violation of the law.

No epidemic situation can be allowed to drift. The policy of laissez faire will not work.

The mailed hand will cure any epidemic situation in short order.

The clergy, physicians, and good citizens generally can be depended on when they are stirred into activity.

So long as the community backs the department of health it can guarantee them against general epidemics.

Evil doing that is based solely on ignorance, among persons naturally disposed to good as they see it, can be obviated permanently only when control is accompanied and tempered by education. On the other hand, when ignorance is grafted on a selfish indifference to the well-being of others, the enlightenment of the ignorant will not overcome the evil doing, save under compulsion of the "mailed hand." Education, therefore, is necessary to remove non-malevolence and to give that moral backing on which alone the force of law can depend. Control is essential, even in the case of the naturally well disposed, to give time for education to get in its work as well as to deal with those who are amenable to control alone. In those things that are for the common safety, therefore, we must have good laws and a competent and conscientious health board to administer them. With these in control, neither plague nor any other epidemic scourge can ever again in a civilized community attain to the devastating proportions it has reached in the past.

THE PRESENCE OF A MYDRIATIC SUBSTANCE IN THE URINE.

In a search for a vasomotor stimulant in the urine of nephritics J. Pal[1] applied the Ehrmann test for adrenalin to the urine of a series of patients suffering from nephritis and of a number of normal individuals. This test depends upon the mydriatic action of adrenalin on the enucleated eye of the frog and will react in the presence of adrenalin in a dilution of 1 to 10,000,000. Pal reported a positive reaction in about half of the nephritics and in 7 per cent. of the normal individuals examined. Martha Diem,[2] who has repeated Pal's experiments, obtained results that were somewhat similar, but she also showed that the presence of a mydriatic substance bore no relation to the degree of arterial hypertension and that such a substance was present in a large proportion of patients suffering from various other ailments. The mydriatic substance was not identified, but it seems highly probable that it is not adrenalin.

CHEAP POSTAGE AND THE NOSTRUM CIRCULAR NUISANCE.

That there would be disadvantages, as well as advantages, connected with the introduction of 2-cent letter postage between this country and Great Britain was to be expected, but it is rather surprising that the first complaint, so far as we have seen, should come from the medical profession of Great Britain. There seems to be a fear in the minds of the British profession—according to some of our British exchanges—that the benefits of the "penny postage" may be more than counterbalanced by the advantage that is likely to be taken of the cheap rate by the American nostrum promoters. The 1-cent circular hitherto in vogue has been easily recognizable and has consequently given rise to no greater trouble than that entailed by throwing it unopened into the waste-paper basket. The substitution of advertisements in the form of sealed letters which will require opening, and at least perfunctorily perusing, for the recognition of their nature, is an undoubted danger. The *Medical Press and Circular*, Oct. 31, 1908, commenting on this subject, states that it has "already been favored with one such circular, franked by a penny stamp or its equivalent value in the American postage." It adds that "the waste of all this expenditure of money in the case of drugs is lamentable. As a matter of fact, all the hundreds of thousands of pounds spent in advertised (*sic*) quack and proprietary remedies must be paid for by the consumers. That is partly why drugs or combinations of drugs are sold at many score times their real value." That such a danger should exist, however, is at once a justification for the crusade which the medical profession has been driven to in this country, and an appeal to all right-thinking physicians to lend their influence and energies to the suppression of a traffic so dishonest and humiliating to us. But while we sympathize with our British confrères in their dread of this new American invasion, we trust that their realization of it will be chastened by the reflection that the

1. Deutsche med. Wchnschr., 1907, xxxiii, 1735.
2. Deutsches Arch. f. klin. Med., 1908, xciv, 1 and 2.

British medical press could do much to aid in suppressing the fraudulent nostrums concerning which it so bitterly complains, instead of abetting them, as it does by accepting their advertisements. It is particularly noticeable that in the very issue of the *Medical Press and Circular* from which we have quoted the above lament, the words quoted stand face to face with a full-page advertisement of antikamnia, one of the rankest of American nostrums.

Medical News

ARKANSAS.

Medical Department Opens.—The Medical Department of Arkansas State University opened for its thirteenth annual term, October 1. Dr. Morgan Smith made the opening address on the subject of "Medicine."

Personal.—Dr. William H. Barry has resigned as a member of the Federal Medical Board, Hot Springs, and Dr. Jacob W. McClendon has been tendered the position.——Dr. William P. Illing, Little Rock, was assaulted by an unknown person while driving near the city limits, October 9.

Society Meeting.—At the annual meeting of the Third District Medical Society, held in Forrest City, October 28, the following officers were elected: President, Dr. Samuel A. Southall, Lonoke; vice-presidents, the presidents of the nine component medical societies; secretary, Dr. Henry H. Righter, Helena; and treasurer, Dr. James O. Rush, Forrest City. Lonoke was selected as the meeting place for the next annual session.

State Antituberculosis Society.—The special committee appointed at the last meeting of the Arkansas State Medical Society met at the State House, Little Rock, and organized the Arkansas Association for the Study and Prevention of Tuberculosis. The following officers were elected: President, Dr. John S. Shibley, Paris; vice-president, Dr. Arthur E. Sweatland, Little Rock; secretary, Dr. Malcue G. Thompson, Hot Springs; and treasurer, Mr. Shibley, Van Buren. The secretary of the association was directed to address letters to the secretary of each county medical society, ministers, the lay press, and school principals in the state, notifying them of the organization of the association and soliciting their individual membership.

COLORADO.

Personal.—Dr. William Wylie Jones, Denver, has been elected president of the medical department of the State University, Boulder; and Dr. Randolph Hudston, vice-president; Dr. William W. Grant, Denver, has been appointed lecturer on surgical gynecology.——Dr. Benjamin B. Beshoar, Trinidad, has been elected state senator.

Committee on Sanitation and Public Health.—Acting on suggestions made by Dr. Joseph N. McCormack, during his recent visit to the state, the Denver County Medical Society has appointed a committee of five to act for the society in all matters pertaining to sanitation, public health and pure food. The committee will endeavor to obtain an increase in the appropriation for the health office of Denver and for the State Board of Health. Three public meetings have already been arranged for the year, and the committee expects to publish in newspapers and other lay publications a series of papers prepared by members of the society and detailing important matters on which the public should be better informed.

GEORGIA.

Personal.—Dr. James C. Bloomfield, Athens, has been elected professor of medical jurisprudence in the University Law School vice Dr. Samuel C. Benedict, resigned.——Dr. W. B. Sumerall will probably be elected superintendent of Grady Hospital, Atlanta.

Society Meeting.—At the annual meeting of the Tenth Congressional District Medical Society, held in Augusta, November 4, the following officers were elected: President, Dr. Robert L. Miller, Tennille; and vice-president, Dr. George R. Maner, Warrenton. A resolution was adopted that Augusta be the permanent meeting place of the society.

Improvement in Medical College Plant.—The faculty of the University of Georgia, Medical Department, Augusta, is making extensive improvements in the city dispensary. A new clinic room is being built to supplement the one in present use. The building has been thoroughly cleaned and overhauled, and a new equipment installed. A schedule has been arranged whereby different members of the faculty of the college will alternate in service at the dispensary.

ILLINOIS.

Free Antitoxin.—The State Board of Health announces that it will furnish diphtheria antitoxin without charge to any person in the state who may need it, but only on application of the attending physician.

Accepts Hospital.—After a delay of two years, the city of Clinton has accepted the gift of a $25,000 hospital, made to the city by the late Dr. John Warner. The delay was caused by the disinclination of the city to defray the expenses of maintenance, and therefore the council refused to accept the building until the Warner heirs had provided a fund for this purpose.

Do Not Want Names Published.—The Lake County Medical Society, at its meeting in Waukegan, October 29, adopted resolutions regarding the publication of the names of physicians in relation to operations, injuries, and other medical matters, and requesting that the various papers of the county refrain from publishing the names of physicians under such circumstances.

Chicago.

Decrease in Pneumonia Deaths.—The mortality from pneumonia continues to decrease. There were 55 deaths last week from this cause, as compared with 58 for the preceding week, and 77 for the corresponding week of last year.

Quarantine Breakers Sued.—It is reported that Dr. William A. Evans, commissioner of health, has filed suits against twenty physicians, patients, and householders, charged with breaking the quarantine laws regarding scarlet fever and diphtheria.

Personal.—Dr. John Gordon Wilson has resigned as assistant professor of anatomy in the University of Chicago, to become professor of otology and head of the department in Northwestern University Medical School.——Dr. William Hessert has been appointed attending surgeon to St. Joseph's Hospital, Chicago.

Hospital Opens.—The new Maurice Porter Pavilion of the Children's Memorial Hospital was opened November 12, when the women of the auxiliary board held a reception for those interested in the hospital. A Wagner concert is to be given at Orchestra Hall December 7, the proceeds of which are to be used for the support of the hospital.

Mortality Returns.—During the week ended November 7, 539 deaths were reported, equivalent to annual death rate of 12.98 per 1,000. Compared with the corresponding week of last year, there were more deaths from diphtheria, diarrheal diseases, consumption, typhoid fever, cancer and nephritis; and fewer deaths from pneumonia, heart diseases, convulsions and violence. Chief among death causes were consumption, 76; pneumonia and nephritis, each 55; intestinal diseases, 51; heart diseases, 40; violence (including suicide), 37; and cancer, 25. Diphtheria caused 21 deaths; typhoid fever, 12; scarlet fever, 8; measles, 2; and influenza and whooping cough, each, 1 death.

Contagious Disease Situation.—A total of 607 cases of communicable diseases was reported to the department during the week ended November 7, 23 fewer than for the preceding week and 320 more than for the corresponding week of 1907. To this total, diphtheria contributed 187; scarlet fever, 181; measles, 56; tuberculosis, 55; typhoid fever, 45; chickenpox, 24; pneumonia, 17; whooping cough, 14; and diseases of minor importance, 28. As compared with the perceding week, there were 27 fewer cases of diphtheria, 42 fewer of typhoid fever, and 17 fewer of tuberculosis, while there were 4 more scarlet-fever cases, 34 more cases of measles, 8 more of chicken pox, and 7 more of whooping cough. At the close of the week there was one smallpox patient in the isolation hospital.

INDIANA.

Society Meetings.—A Physician's Library Club has recently been formed at Princeton, with Dr. George C. Kendle, president, and Dr. Alois L. Ziliak, secretary.——At the annual meeting of the Fourth District Medical Society, held in Madison, October 22, Dr. Harley H. Sutton, Aurora, was elected president; Dr. Curtis Bland, Greensburg, vice-president; Dr. James M. Shields, Seymour, secretary; and Dr. James H. Green,

North Vernon, treasurer.——At the annual meeting of the Eleventh District Medical Society, held in Wabash, October 22, Dr. Jared Spooner, Peru, was elected president; the presidents of the seven component county medical societies, vice-presidents; and Dr. Morris H. Krebs, Huntington, secretary-treasurer.

Disease and Death.—The total number of deaths reported in the state for September was 2,755, equivalent to an annual mortality of 12.3 per 1,000. The order of disease prevalence for the month was as follows: Typhoid fever, diarrhea, tonsillitis, bronchitis, rheumatism, cholera infantum, intermittent and remittent fever, cholera morbus, dysentery, diphtheria, pleurisy, influenza, scarlet fever, pneumonia, erysipelas, typho-malarial fever, smallpox, whooping cough, cerebrospinal meningitis, chickenpox, measles and puerperal fever.——During the month 318 deaths were caused from tuberculosis, 302 from diarrheal diseases, 217 from violence, 139 from cancer, 95 from pneumonia, 29 from diphtheria, 21 from whooping cough, 14 from cerebrospinal meningitis, 7 from puerperal fever, 5 each from influenza and scarlet fever, and 1 from measles.

Personal.—Dr. John M. Kitchen, Indianapolis, is ill in the Methodist Hospital with cerebral hemorrhage.——Dr. Harry C. Sharp, Jeffersonville, for eleven years physician at the state reformatory, has retired and has been succeeded by Dr. Harry P. Smith, Kokomo.——Dr. Charles S. Mack, La Porte, coroner of La Porte County, has announced his intention of resigning and entering the ministry.——Dr. Josephine M. Mitchell, Lafayette, has returned from abroad.——Dr. E. B. Mumford, Indianapolis, has been appointed special physician of the city board of health to supervise the inspection of contagious and infectious diseases.——Dr. Charles A. O'Brien, Fillmore, has resigned as physician and coroner of Putnam County. Dr. Walter R. Hutcheson, Greencastle, has been appointed to fill the unexpired term as county physician.——Dr. Edwin O. Harrold, Marion, fractured his right clavicle in a carriage accident, October 13.——Dr. Elihu T. Mendenhall, New Castle, is reported to be seriously ill with heart disease.

LOUISIANA.

State Board Organizes.—The new State Board of Health has been organized with Dr. D. Harvey Dillon, Many, president; Dr. Beverly W. Smith, Franklin, vice-president; and Dr. Joseph A. Estopinal, Hahnville, secretary.

Dedicatory Exercises.—At a meeting of the board of administrators of the Charity Hospital, New Orleans, November 2, it was announced that the Delgado Memorial Building was almost completed, and would be ready for official acceptance November 10.

Dinner to Dr. Irion.—On October 1, a dinner was given in honor of Dr. Clifford H. Irion, the retiring president of the State Board of Health, Dr. R. E. Blouin, director of the sugar experimental station, and Dr. Paul E. Archinard, bacteriologist of the State Board of Health.

Personal.—Dr. Richard F. Harrell, Alexandria, has returned from Europe.——Dr. Lewis H. Pirkle, secretary of the Shreveport board of health, has resigned.——Dr. Quitman Kohnke has been elected president of the Covington branch of the Louisiana Antituberculosis League.——Dr. J. Ashton Blanchard, Shreveport, has resigned as surgeon First Infantry, La. N. G. and has gone to Europe.

Clinics Open.—The New Orleans Polyclinic, the post-graduate medical department of the Tulane University of Louisiana, opened November 2.——The free tuberculosis clinic of Tulane University was inaugurated with formal ceremony November 2. This clinic is the first of such institutions to be established in various parts of New Orleans under the auspices of the Antituberculosis League.

Extension Lectures.—The faculty of Tulane University announces a course of extension lectures, which began October 28. The course includes a series of lectures by Prof. George Dock on "Ductless Glands," to be followed by lectures on special subjects, by Surgeon C. W. Stiles, P. H. and M.-H. Service; F. Creighton Wellman of the Bureau of Agriculture; Dr. William A. Evans, Health Commissioner of Chicago; Dr. W. H. Dalrymple of the Louisiana State Department of Agriculture, and others.

Osteopaths Need Not Register.—Benjamin T. Waldo, attorney of the State Board of Health, has written an opinion in which he holds that under the several sections of the law on the subject, the State Board of Health can not receive for recordation the certificate of any osteopath in the state. The law provides that osteopaths shall exhibit their diplomas and qualify before the osteopathic board, and furthermore, that the osteopath, when qualified, can register his certificate with the clerk of the district court. This registration admits him to practice his profession. Mr. Waldo asserts that there is no provision of the law that permits the State Board of Health to receive the certificates of osteopaths, and accordingly he upholds the action of the board in declining to receive certificates of those engaged in that practice.

MASSACHUSETTS.

Lowell Lectures.—Dr. Theobald Smith, professor of comparative pathology in Harvard Medical School, will give a course of eight Lowell lectures on "Our Defence Against the Micro-organisms of Disease," on Tuesdays and Fridays, beginning March 16, 1909.

Psychotherapeutic Course.—A course of lectures on the principles of psychotherapy, based on psychopathology, is being inaugurated this year at Tufts Medical School. The course will include mental physiology, dissociations of the mind, mental syntheses, special pathology and methods of examination, in addition to the ordinary clinical methods.

Sanatorium Opened.—Miss Mary E. Barr, formerly superintendent of the Margaret Pillsbury Hospital, Concord, N. H., the Eliot Hospital, Manchester, N. H., and the Lawrence General Hospital, has resigned and opened a sanatorium for the treatment of convalescents and those suffering from chronic diseases, in Methuen, Mass.

Antituberculosis League Elects.—At the annual meeting of the Lawrence Antituberculosis League, the following officers were elected: President, Dr. Charles G. Carleton; vice-president, Dr. George B. Sargent; secretary, Dr. J. Forrest Burnham, directors, Drs. W. H. Coon, Frank B. Flanders, Carl H. Eidam and George P. Howe; and medical supervisor, Dr. Alexander L. Siskind.

Damages Awarded.—Dr. Richard F. Daly has received an award of $1,200 in a suit against the Boston Elevated Railroad for injuries received at 9 p. m., Jan. 4, 1906, at the Dudley Street station. The defense claimed that the track was slippery from a constant drizzle, but Dr. Daly proved, by the records of the local U. S. Weather Bureau, that no rain fell that day after 1:10 p. m.

Board of Health Changes.—Burt R. Rickards, director of the bacteriologic laboratory of the board of health, has resigned, to accept the charge of the laboratory of the Ohio State Board of Health, Columbus. His successor will be the present assistant, Dr. Francis H. Slack, who will in turn be succeeded by the present bacteriologist, Dr. Burdett L. Arms. Not a little of the present high efficiency of the laboratory is due to this policy of promotion.

Tuberculosis Camp Report.—The Brookline Tuberculous Camp for Children was open July 2 to September 26 on the grounds of the Board of Health Hospital. The report of the committee in charge shows that of the 23 patients cared for, all improved, and that in 7 cases the disease was arrested. The daily cost was about 55 cents per patient, a total of $740. The town board of health contributed 50 cents for each patient per day, and the rest was secured by private subscriptions.

Personal.—Dr. Henry Ehrlich has resigned as chairman of the board of trustees of the Boston Public Baths.——Dr. Daniel Starch, instructor in experimental psychology in Wellesley College, has been appointed instructor in psychology in the University of Wisconsin.——Dr. Francis J. Kelleher has been appointed instructor in medical jurisprudence in Tufts Medical College.——Dr. William F. McGrath has been elected president, and C. W. Wright, secretary, of the medical and surgical staff of the North Adams Hospital.

District Society Meeting.—At the quarterly meeting of the Essex North District Medical Society, held in Amesbury, October 14, a committee was appointed to present an outline of the position advised by the society to physicians when requested to accept rebates on prescriptions or purchases by druggists. A committee was also appointed to collect and forward to the American Medical Association a list of all advertising doctors, medical companies, medical institutions, cancer cures, locomotor ataxia cures, etc., in the district, for the use of the information department.

Massachusetts Association of Boards of Health.—At the quarterly meeting, October 29, a circular presented by the committee on Fly Nuisance was appointed to be sent throughout the state. The Committee on Milk Legislation was directed to seek the passage of a bill by the next legislature making milk inspectors agents of the boards of health. Prof. C. E. A. Winslow read a paper on the "Conveyance of Bac-

teria by Sewer Air," telling of experiments made by him for the Master Plumbers Association, which prove conclusively that while bacteria may occasionally be present in sewer air, their actual number is very small, and that the danger from breathing such air is far less than is incurred by the use of the drinking water that is ordinarily at hand.

MICHIGAN.

Society Passes Resolutions.—The Clinton County Medical Society, at its recent meeting, adopted resolutions of regret and sympathy over the death of Dr. Samuel E. Gillam, St. Johns, first president of the society.

Personal.—Dr. Edward Moriarty, Mt. Clemens, sailed for Germany October 22.——Dr. Bertha S. Stuart has been made medical director of the Barbour Gymnasium, Ann Arbor.——Drs. Michael P. Fenelon and William A. Lemire, Escanaba, have been named as physicians to Delta County.——Dr. Max Ballin, Detroit, who recently returned from Europe, and Dr. Walter B. Geikie, Toronto, were guests of honor at a banquet at the Hotel Cadillac, Detroit, October 17.

September Deaths.—During September, there were 3,280 deaths reported to the department of state, equivalent to an annual death rate of 14.7 per 1,000 population. This number is an increase of 188 over the preceding month, and of 398 over September, 1907. Chief among death causes were diarrhea and enteritis, 592; violence, 194; cancer, 144; tuberculosis, 137; typhoid fever, 90; pneumonia, 87; meningitis, 42; diphtheria, 26; whooping cough, 23; influenza, 9; measles, 3; and scarlet fever, 2. As compared with the preceding month a decrease is shown in the deaths from tuberculosis, scarlet fever, measles, whooping-cough, cancer and violence, and an increase is shown in those from typhoid fever, pneumonia, and diarrheal diseases of children.

Dangerous Communicable Diseases.—During September there was a slight increase in the cases of pneumonia reported, as compared with the preceding month; typhoid fever was reported in 164 localities, an increase in 18 localities as compared with the preceding month; diphtheria was much more prevalent than in the preceding month, and slightly more prevalent than the average of the month for recent years. The disease was reported in 55 localities, an increase of 12 over the preceding month. Meningitis was slightly more prevalent than in August; whooping-cough was less prevalent; scarlet fever, while more prevalent, was much less prevalent than the average; measles was much less prevalent; and smallpox, while slightly more prevalent, was much less prevalent than the average for recent years.

Elections.—At the annual meeting of Saginaw County Medical Society, held in Saginaw, the following officers were elected: Dr. Fred W. Edelman, president; Dr. Pearl S. Windham, vice-president; Dr. J. Neil MacLean, secretary-treasurer; Drs. Bert B. Roe, Elmore E. Curtis and William F. English, directors; Dr. William J. O'Reilly, delegate to the state medical society; and Dr. Bert B. Roe, alternate, all of Saginaw.——At the annual meeting of Mecosta-Newaygo Counties Medical Society, held in Big Rapids, Dr. Franklin C. Terrill, Big Rapids, was re-elected president; Dr. James B. Campbell, Stanwood, vice-president; Dr. Donald MacIntyre, Big Rapids, secretary; and Dr. Leavitt S. Griswold, Big Rapids, delegate to the state medical society.——Dr. Harvey Hoffman was elected president; Dr. Arthur W. Abbott, vice-president; and Dr. E. George Gray, secretary-treasurer of the Mason County Medical Society, at its annual meeting in Ludington recently.——Huron County Medical Society, at its annual meeting, held in Bad Axe, re-elected Dr. Alexander M. Francis, Port Austin, president; Dr. Mathew C. McDonnell, Bad Axe, vice-president; Dr. Daniel Conboy, Bad Axe, secretary-treasurer; Dr. David J. Lackie, Grindstone City, delegate to the state medical society; and Dr. Bernhard Friedlaender, Sebewaing, alternate.

MINNESOTA.

College Building Burned.—Anatomy Hall, formerly the medical building of the University of Minnesota, was destroyed by fire October 5, and thirty cadavers were burned. The loss is about $16,000.

Plans for New Hospital.—The state architect has completed plans for the new wing in the St. Peter State Hospital for the Dangerous Insane. The plans call for a two-story brick and stone structure to cost $60,000, capable of accommodating 60 patients.

Personal.—Dr. Berndt M. Behrens, Minneapolis, was seized with cerebral hemorrhage, while in attendance at the Hennepin County Medical Society, October 19, and is in a critical condition.——Dr. William A. Jones, Minneapolis, has been elected president of the State Board of Health, vice Dr. James B. McGaughey, Winona, deceased, and Dr. Christopher Graham, Rochester, has been made a member of the executive committee.

MISSOURI.

Illegal Practitioner Fined.—Mrs. Magdalen Wunderlich, St. Louis, is said to have been fined $200 in the Court of Criminal Correction after conviction on the charge of practicing medicine without a license.

Hospital Opened.—The new general hospital in Kansas City was opened for public inspection October 7. The hospital will accommodate 400 patients and is thoroughly equipped. Dr. J. Park Neal has been appointed house surgeon of the hospital.

Election.—At the annual meeting of Caldwell County Medical Society, held at Braymer, October 14, the following officers were elected: President, Dr. Robert L. Mount, Polo; vice-president, Dr. William H. Aplin, Hamilton; secretary-treasurer, Dr. Tinsley Brown, Hamilton; censors, Drs. William T. Lindley, Hamilton, James O. Waterman, Breckenridge, and James O. Wilkerson, Cowgill, and delegate to the state society, Dr. Corydon O. Dewey, Breckenridge.

Personal.—Dr. Nathaniel M. Semple has been appointed editor of the *Bulletin of the St. Louis Medical Society*, vice Dr. Edmund A. Babler, resigned.——Dr. William E. Leighton has been appointed assistant surgeon of the St. Louis Skin and Cancer Hospital.——Dr. E. Lee Dorsett has been appointed assistant gynecologist to the Deaconess Hospital, St. Louis.——Dr. Frank J. Lutz, St. Louis, has returned from Europe.——A banquet was given at Lebanon, October 13, in honor of Dr. James McComb, on the fiftieth anniversary of his practice in Laclede County.

Visitors from Abroad.—Prof. Dr. Wilhelm von Leube of Würzburg held a clinic at the Washington University Hospital, October 21, and was entertained at a banquet by the Verein Deutscher Ärzte and the faculty of the medical department of Washington University, October 19.——Dr. Clemens von Pirquet, Vienna, addressed a joint meeting of the Medical Society of the City Hospital Alumni, and the St. Louis Medical Society, October 17, on "Cutaneous Reaction of Tuberculins."——Prof. James G. Mumford of Harvard University, was the guest of the St. Louis Medical Society, October 29, and delivered an address on "Studies in Cancer."

NEW YORK.

Colleges Open.—The College of Medicine of the University of Syracuse opened its annual session October 6.——The formal opening of University and Bellevue Hospital Medical College, New York City, took place September 30, at the Carnegie Medical Laboratory. Addresses were made by the chancellor and Dr. Egbert Le Fevre, dean of the faculty of the medical school.

Academy in New Quarters.—On October 21, the Elmira Academy of Medicine celebrated the opening of its new rooms in the Federation Building, Church and State Streets. About 125 physicians were present, and papers were read by Drs. Henry C. Buswell, Buffalo, Henry L. K. Shaw, Albany, and Edward B. Angell, Rochester. It is intended to establish a medical library and reading room, and to make the new home of the academy a center for the various medical interests of the city.

Hospital Notes.—The new Children's Hospital, Buffalo, built and equipped by Mr. and Mrs. Charles Pardee, at a cost of $10,000, was opened last week for the reception of patients.——The Day Camp for Tuberculosis has been closed for the season. The work accomplished was encouraging, and the camp will be continued on a larger scale next year. There is an urgent need for a large, well-equipped tuberculosis hospital in Buffalo, as the consumptive pavilion in the Erie County Hospital and the State Tuberculosis Sanatorium at Ray Brook are already overfilled.

Necessity for Municipal Hospital.—At a public meeting, held recently in Buffalo, representatives of the Buffalo Academy of Medicine and the Erie County Medical Society, made urgent appeals for a modern, well-built municipal hospital for infectious diseases. A resolution was adopted authorizing the corporation counsel to draft a bill to the legislature allowing the city to bond itself for this purpose. In October last 326 cases of scarlet fever were reported in the city, and this shows the necessity for such an institution, as the spread of the disease has undoubtedly been due to lack of an isolation hospital.

During October there were reported 138 cases of diphtheria or 104 more than for the corresponding month of last year.

Personal.—Dr. John Parmenter has resigned as associate surgeon of the Buffalo General Hospital and has been appointed consulting surgeon. Dr. Frederick J. Parmenter has been appointed assistant surgeon and Dr. Edward R. McGuire associate surgeon of the hospital.——Dr. George F. Cott, Buffalo, has returned from Europe.——Dr. and Mrs. Edgar T. Shields, Buffalo, have started for their post of duty in East China, near the border of Thibet.——Dr. John H. R. Barry, Long Island City, has been appointed superintendent of the health department of the Borough of Queens.——Dr. Lewis J. Davis, Watertown, is reported to be in a critical condition from skull fracture, due to a fall down a flight of stairs, October 5.

Patchogue Smallpox Mild.—Dr. Frank Overton, health officer of Patchogue, states that the item in THE JOURNAL, October 31, relating to smallpox in that city, was exaggerated. He says that there is an epidemic of smallpox of extremely mild type, so mild that cases are often not recognized by physicians. No deaths have occurred, and nearly all of the twenty or more houses which were quarantined are now cleaned and fumigated, and by this time, he says, the disease will be at an end. From the start the authorities had the disease under control, and practically every one in the town has been vaccinated. He states that so far from criticizing the health authorities, the State Department of Health has commended their work. He incloses a circular which he has issued on the "Care of Vaccination," which details the sequelæ of vaccination and gives directions as to after-treatment.

District Society Meetings.—At the second annual meeting of the First District Branch of the state medical society, held October 21, Dr. Charles E. Townsend, Newburgh, was elected president; Dr. Theodore D. Mills, Middletown, secretary; and Dr. Newton F. Curtis, White Plains, treasurer (re-elected).—— The second annual meeting of the Third District Branch of the state medical society was held in Troy October 27. Dr. J. L. Archambault, Cohoes, was elected president; Dr. Andrew MacFarlane, Albany, vice-president; Dr. Henry L. K. Shaw, Albany, secretary; and Dr. Sherwood V. Whitbeck, Hudson, treasurer. Hudson was selected as the place of the next annual meeting. A feature of the meeting was an address by Dr. Clement von Pirquet, Vienna, on "Some New Aspects of Tuberculosis."——The second annual meeting of the Fifth District Branch of the state medical society was held in Utica October 18, and Dr. Gilbert D. Gregor, Watertown, was elected president; Dr. Frank E. Fox, Fulton, vice-president; Dr. William D. Garlock, Little Falls, secretary; and Dr. F. Edward Jones, Beaver Falls, treasurer. Watertown was selected as the next place of meeting.——At the annual meeting of the Eighth District Branch of the state medical society, held in Buffalo, October 27, the following officers were elected: President, Dr. M. P. Conway, Auburn; vice-presidents, Drs. Frank H. Stephenson, Syracuse, and Edward W. Mulligan, Rochester; secretary, Dr. Clarence A. Greenleaf, Hornell (re-elected); and treasurer, Dr. Charles O. Boswell, Rochester. Auburn was selected as the place of meeting for 1909.

New York City.

Dr. Armstrong Leaves Bellevue.—The trustees of Bellevue and allied hospitals have accepted the resignation of Dr. S. T. Armstrong, medical superintendent.

Central Park Dairy.—Pure clean milk has been the demand of health officers and others who are concerned with the welfare of the people, and the New York *Herald's* proposal for a dairy in Central Park is approved of. A model stable is suggested. The idea is commended by many.

New Bellevue Hospital Building Opened.—The new building has been turned over to the use of patients. The number of patients in the hospital now is 855, and there is room for 325 more; these vacancies will be filled shortly by transferring patients from the old to the new building. The new building is at the southeast end of the grounds, and another new building is almost completed at the northeast end of the grounds.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended October 31, 431 cases of tuberculosis, with 134 deaths; 321 cases of diphtheria, with 21 deaths; 145 cases of measles, with 3 deaths; 162 cases of scarlet fever, with 6 deaths; 85 cases of typhoid fever, with 19 deaths; 26 cases of whooping cough, with 4 deaths; 9 cases of cerebrospinal meningitis, with 5 deaths; and 81 cases of varicella, a total of 1,260 cases and 192 deaths.

OHIO.

Laboratory to be Dedicated.—The H. K. Cushing Laboratory of Experimental Medicine at Western Reserve University, Cleveland, is to be dedicated November 20. The address of the occasion will be delivered by Dr. William Henry Welch of Johns Hopkins University.

The Eichberg Fund.—Dr. Nathaniel P. Dandridge, chairman of the committee of the Cincinnati Academy of Medicine, appointed to secure the fund of $100,000 to establish a chair of physiology in the University Medical College for a memorial to Dr. Joseph Eichberg, announces that $20,000 already has been subscribed.

Personal.—Dr. Robert Ingram, Cincinnati, has returned after five months abroad.——Dr. Louis M. Early, Columbus, has retired from practice.——Dr. Jacob A. Kimmell, Findlay, has been elected president of the Association of Big Four Railway Surgeons.——Dr. George L. Ramsey, Powhatan, lost his home and office by fire recently.——Dr. David N. Kinsman, Columbus, who has been seriously ill with heart trouble and bronchitis, is reported to have passed the critical stage of his illness.

Society Meetings.—At the annual meeting of the Tenth District Medical Society, held in Circleville, October 10, the following officers were elected: President, Dr. Dudley V. Courtright, Circleville; vice-presidents, Drs. Lutrelle M. Henderson, Marysville, Roy L. Pierce, Mt. Gilead, and Albert E. Loyer, New Washington; and secretary-treasurer, Dr. George O. Berry, Lancaster.——At the annual meeting and banquet of the Starling Medical College Alumni Association of the Miami Valley, held in Dayton, October 28, Dr. Clifton L. Patterson was elected president; Dr. Frank R. Henry, vice-president; Dr. John W. Millette, secretary; Dr. J. B. Sampsell, treasurer; and Drs. Gustave A. Hochwalt, William E. Allaman and G. W. Richie, trustees.

Hospital Notes.—The board of physicians of Bethesda Hospital, Zanesville, at the annual meeting October 20, elected Dr. Elias C. Logsdon, president; Dr. Simeon Kelly, vice-president; Dr. Osborn M. Wiseman, secretary, and Dr. John B. McBride, censor.——The Guy Buttles Case Memorial wing of St. Luke's Hospital, Cleveland, erected at a cost of $30,000, was dedicated October 18, with formal ceremony.——The Children's Hospital, Columbus, by buying a corner lot, has filled out its holdings in Miller Avenue, from Fair Avenue to Oak Street.——At a meeting of the board of managers and trustees of the Protestant Episcopal Free Hospital for Children, Cincinnati, the bequest of $20,000 made by the late John Emery to the institution was added to the endowment fund, the interest being used toward defraying the running expenses.

GENERAL.

Marine-Hospital Service Examination.—At the Bureau of Public Health and Marine-Hospital Service, Washington, D. C., Jan. 11, 1909, at 10 a. m., candidates will be examined for assistant surgeons. Candidates must be between 22 and 30 years of age; graduates of reputable medical colleges; and must furnish testimony as to their moral character. The examination is physical, oral, written and clinical. On appointment, officers, as a rule, are first assigned to duty at a hospital in one of the large cities. After four years, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeons. Promotion to grade of surgeon is made according to seniority, and after due examination. Assistant surgeons receive $1,600, passed assistant surgeons, $2,000, and surgeons, $2,500 a year, and in addition longevity pay of 10 per cent. for each five years' service for twenty years. The tenure of office is permanent. Officers are further entitled to quarters for themselves and families or commutation at the rate of $30, $40 or $50 a month when at stations where quarters can not be provided. For information or invitation to appear before the board of examiners, application should be made the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

Society Meetings.—At the first annual meeting of the Railway Surgeons Association of the Pennsylvania Lines East of Pittsburg, held in Philadelphia, November 2, under the presidency of Dr. Joseph C. E. Egbert, Wayne, Pa., the following officers were elected: President, Dr. William H. Cameron, Pittsburg; vice-presidents, Drs. Laban T. Bremerman, Downington, Pa., and Archibald C. Harrison, Baltimore; secretary, Dr. Amos W. Colcord, Clairton, Pa.; treasurer, Dr. Eugene H. James, Harrisburg (re-elected); and delegate to the Association of Surgeons of the Pennsylvania Lines West of Pittsburg, Dr. John F. Davis, Oil City. The next meeting will be held at Harrisburg in October, 1909.——At the seventh annual con-

vention of the Association of Seaboard Air Line Railway Surgeons, held in Columbia, S. C., October 27 and 28, the following officers were elected: President, Dr. William Weston, Columbia, S. C.; vice-presidents, Drs. Jarvis G. Dean, Dawson, Ga., J. W. Smith, Branchville, Va., and Richard T. Walker, Cedar Keys, Fla.; and secretary-treasurer, Dr. Jarrett W. Palmer, Ailey, Ga.——The Æsculapian Society of the Wabash Valley, at its annual meeting in Paris, Ill., October 29, elected the following officers: President, Dr. Joseph H. Weinstein, Terre Haute, Ind.; vice-president, Dr. Thomas O. Freeman, Mattoon, Ill.; secretary-treasurer, Dr. Herbert N. Rafferty, Robinson, Ill.; and directors, Drs. Finis E. Bell, Mattoon, Ill.; Elmer B. Cooley, Danville, Ill.; Frank Dunham, Robinson, Ill.; William H. Ten Broeck, Paris, Ill.; and Myron A. Boor, Terre Haute, Ind. The next meeting will be held at Robinson, Ill.

FOREIGN.

Retirement of Zaufal.—Prof. E. Zaufal retires this year from the chair of otology at the German University at Prague; the present privat docent, O. Piffl, is to succeed him.

Two Hundredth Anniversary of the Birth of Albrecht von Haller.—On October 16, Berne in Switzerland celebrated this anniversary in memory of the "last international learned and teaching biologist." He obtained his medical degree under Boerhaave at Leyden, and then accepted the chair of anatomy and surgery at Göttingen offered him by the king of England who had founded the Göttingen university not long before. Haller wrote and taught in Latin, and was thus at home in learned circles everywhere, in England, Germany, France and elsewhere, but he returned later to Berne, where he died in 1777. Some of his correspondence is preserved there, including 13,000 letters from 1,200 different correspondents. His works on physiology and various medical subjects were numerous and showed great research—his "Methodus Studii Medici" containing references to 4,000 works, and yet there was no *Index Medicus* in those days! The last issues of some of our European exchanges contained illustrated historical sketches of this early poet, anatomist and biologist. Professor Waldeyer of Berlin delivered a historical address at the anniversary celebration.

LONDON LETTER.

(*From Our Regular Correspondent.*)

LONDON, Oct. 31, 1908.

The Destruction of Rats.

Lord Carrington, minister of agriculture, received a deputation consisting of Sir James Crichton-Browne, Mr. Theobald (vice-president of the Agricultural College), Mr. Boelter (Incorporated Society for the Destruction of Vermin), and others urging the importance of the extermination of rats. Mr. Boelter said that the amount of damage done by rats in Great Britain exceeded $75,000,000 annually. This figure was arrived at by allowing only one rat to each acre of land under cultivation and assuming that it did damage only to the extent of half a cent a day. Over $1,250,000 was expended every year on rat poisons, or about ten times the amount required to carry out the work of complete extermination on systematic lines. The deputation laid before Lord Carrington the draft of an act which they would like to see passed. This leaves it to the local authority to take steps for the destruction of rats, and if they fail the local government board shall do the work, the expenditure to be refunded by the local authority. Inspectors are empowered to enter without warrant any suspected area (dwelling-house, outhouse, factory, warehouse, dock, wharf, railway station, stable, sewer, field, garden, and stacks of wood, hay and corn. For obstructing an officer the fine would be about $25. It is expected that the Board of Agriculture will make known its decision in about a month.

New Regulations for the Prevention of Grinder's Phthisis.

New regulations for the prevention of grinder's phthisis, from which the mortality is still considerable, have been issued by the home secretary, to whom they have been recommended by representatives of both the employers and employés engaged in this industry. The regulations provide that in the dry grinding of metal and in dusty finishing processes adequate means be taken for intercepting the dust given off. These means include efficient hoods, ducts, exhaust draughts and arrangements for the disposal of dust. The exhaust can be produced by a fan or by any other means equally efficient. Recent experiments indicate that some assistance in this direction can be obtained by utilizing the draught from the revolving grindstone or wheel itself. A second regulation deals with the racing of grindstones, which must not be carried on without effectual means for preventing the escape of dust into the room. Two methods are suggested: (1) Racing under a cover with exhaust draught, and (2) wet racing, that is directing a stream of water on the point of contact of the racing tool with the grindstone. The former is used in Germany; the latter has been experimentally tried in Sheffield.

Tax on Nostrums.

In the British Isles the sale of so-called "patent" or proprietary medicines is entirely uncontrolled by the government, except that it levies a tax on every article sold, and requires that it bear a stamp of the value of the tax. This practice has the unfortunate consequence that when ignorant people see this revenue stamp they are prone to think that the article is in some way sanctioned by the government and therefore that the usually fictitious claims made by the exploiters are true. There are some signs, however, that this supine attitude of the government will be abandoned. As shown in recent letters to THE JOURNAL the authorities have begun to prosecute quacks for obtaining money by fraudulent pretences of cure, and no reason can be given why the same treatment should not be applied to the nostrum vendor. In the case of the exploiters of "tuberculozyne" the coroner's jury suggested a prosecution at the inquest held on the boy who died from tuberculosis while taking it (THE JOURNAL, Sept. 26, 1908, p. 1093), but so far nothing appears to have been done. A nostrum vendor has evaded the revenue authorities rather ingeniously. W. Migge of 10 Eastcheap, was summoned for selling without a revenue stamp a box containing a preparation to be used as medicine described as "Antineurasthin," or "Dr. Hartmann's Brain and Nerve Food." A year ago the vendor wrote to the board of inland revenue asking whether the preparation had to be stamped or not. The board, after considerable correspondence, informed him that it should be. The defendant took a contrary view, holding that his stuff was a food, and these proceedings followed. The case was dismissed.

Postgraduate Teaching in London.

The opportunities for postgraduate study have been much increased in London in recent years. Not long ago, in spite of the large number of hospitals and medical schools, no organized postgraduate teaching existed in this city. The teaching work of the great hospitals was organized simply for the instruction of students pursuing their medical course. Practitioners resident in London or foreign physicians who desired to attend hospital practice found themselves out of place. At the large general hospitals the teaching was designed only for the instruction of the students and at the special hospitals there was no organized teaching. At the same time that London was practically ignoring medical graduates, whether home or foreign, the other European capitals—Berlin, Vienna and Paris—were doing everything possible to attract them by courses specially designed for their instruction. The advances of medicine in recent years which have rendered postgraduate instruction necessary for all who desire to keep up to date at last broke down the conservatism which confined the vast teaching opportunities of London to students. One of the first attempts to remedy this condition was made by the London Postgraduate Association which was founded in 1898. On payment of a fee of $50 for three months or $75 for six months, a physician is admitted to the practice of the following general hospitals: Charing Cross, Guy's, King's College, St. Mary's, St. Thomas's, University College and Westminster; and to the following special hospitals: The Brompton Hospital for Consumption and Diseases of the Chest, the Hospital for Sick Children, Great Ormond St., the London School of Tropical Medicine, the National Hospital for the Paralyzed and Epileptic, Queen Square and the Royal London Ophthalmic Hospital. He is also entitled to attend postgraduate classes which are held from time to time in these hospitals. But, as stated above, the teaching at the general hospitals mentioned is designed almost entirely for the instruction of students. An increasing number of institutions devoted solely to the instruction of graduates are being formed. The most important is the West London Postgraduate College which was started at the West London Hospital in 1895. Instruction is given to physicians in every possible way—in the wards and out-patient departments and in lectures. The hospital is largely attended by the medical officers of the army and navy, for whom postgraduate courses are now compulsory. The fee for the hospital practice for one month is $25, for three months $40 and for six months $60. Extra fees are charged for special classes in operative surgery, bacteriology, anesthetics and tropical medicine. More recently founded and on

similar lines are the North-East London Postgraduate College (in connection with the Tottenham Hospital) and the London School of Clinical Medicine (in connection with the Dreadnaught Hospital, Greenwich). There is also the Medical Graduates College and Polyclinic—a unique institution which was founded about 10 years ago mainly on the initiative of Mr. Jonathan Hutchinson, who has presented to it his clinical museum. For the small fee of $5 annually physicians have the privilege of attending clinics held daily at 4 p. m and lectures which are given at 5:15 p. m. by the most eminent men in London and the provinces. Special classes in clinical microscopy, practical gynecology, *x*-ray work, applied anatomy, practical otology, laryngology and ophthalmology are also held. The fee for each of these is $5, except gynecology, for which the fee is $10. At the clinics the cases are almost all selected and during the year many rare forms of disease are shown. The drawback to this institution is that no hospital is attached to it, therefore cases in which the patients are confined to bed can not be shown. It is largely patronized by physicians living in or near London and has a membership of 1,000. Of the special hospitals which are devoted to postgraduate teaching, the most important only will be mentioned. The principal eye hospital is the Royal London Ophthalmic (formerly known as Moorfields). The teaching is excellent and a large number of the ophthalmic surgeons of Great Britain and her colonies are trained here. The National Hospital for the Paralyzed and Epileptics is by far the most important hospital devoted to nervous diseases, and has a remarkably brilliant staff, which includes almost all the great names in English neurology. Hughlings Jackson, " the father of neurology," Buzzard, Bastain and Gowers are now on the consulting staff and have been succeeded by men equally eminent—Horslev, Ferrier, Risien, Russell, Omerod and Beevor. The London School of Tropical Medicine is connected with the Seaman's Branch Hospital at the docks. Here physicians going abroad can study cases of tropical disease in patients who arrive in this country from all parts of the world. The school buildings include laboratories, a museum and a library. Classes are held in helminthology, protozoölogy and entomology.

PARIS LETTER.

(From Our Special Correspondent.)

PARIS, FRANCE, Oct. 24, 1908.

The Boldness of Charlatanry.

A grocer who issued a circular proclaiming the miraculous virtues of a certain table water called *La Désirée*, "a refreshing laxative and aid to digestion, drawn from a depth of over 100 feet, absolutely bacteria-free, approved by the government," has just been sentenced to six months in prison and fined $100 for fraud. The grocer had in the first place simply drawn this water from his well; then, the well water having become muddy, he used the water of the Seine. Unfortunately, other frauds, much more dangerous for the public health, remain unpunished. The walls of Paris are plastered with the posters of a self-styled "Institute of International Medical Therapeutics," which, under deceptive titles, such as "The Great French Clinics," "Public Health: Medical Service," *etc.*, promise instant cure of the most obstinate diseases. These posters do not even bear the stamp which in France, according to law, all posters, except electoral notices, must bear. At first the culprits timidly put up cards; then, profiting by impunity, they became bolder and gradually increased the size and number of their posters, and within a few days, they have put a red cross at the top, which will still further influence public credulity. The matter has been taken up by Dr. Salmon, a member of the city council.

A Franco-Danish Mission for the Study of Leprosy.

Professor Ehlers of Copenhagen is now in Paris to obtain (probably from the Pasteur Institute or the laboratory of parasitology of Prof. Raphael Blanchard) French collaborators in organizing an expedition to Ste. Croix in the Danish Antilles, where there are two great leper colonies, in order there to study experimentally the rôle of blood-sucking insects, especially bedbugs and fleas, in the propagation of leprosy. At the invitation of the Colombian government, the expedition will also go to Colombia, where there are many lepers.

Yellow Fever at St. Nazaire.

There have been fresh cases of yellow fever at St. Nazaire. The total number is 12, with 6 deaths. Officially, the epidemic has been stamped out since October 19; but the disease has made almost as many victims at St. Nazaire in a few days as it made in Martinique in three months. It may be true that yellow fever can not perpetuate itself in France, but that is no reason for neglecting precautions against it, as has been done. The director of the sanitary service at St. Nazaire omitted to inspect ships himself, even in serious cases. Thus, he sent a mere agent of the sanitary service, who was not even a physician, to inspect a ship from the Baltic which had cholera on board, and imprudently admitted it to free pratique. He likewise sent a subordinate to inspect the packet *La France*, which brought the yellow fever to St. Nazaire. This unscrupulous director has just lost his position; and an action has been begun against the captain and physician of *La France*.

Official Inquiry Into Yellow Fever.

The government commission on hygiene has sent a delegation to St. Nazaire to study on the spot the conditions which have produced yellow fever there. The inquiry has shown that a revision of the sanitary regulations is necessary. At present a vessel coming from an infected port can obtain free pratique if the passage has consumed not less than nine days. The delegation is agreed that, since the mosquitoes can live longer, the period of detention must be extended to fourteen days. It seems necessary, moreover, to improve the methods of destroying the mosquitoes during the passage. For the hold and the cargo, this is relatively easy by the use of sulphurous acid. For the cabins, it is necessary to use one of the formalin products. The delegation believes that it is also indispensable to extend the limited powers of the physicians of the sanitary corps; that sanitary powers should extend on board of the vessels; that physicians should carry out sanitary measures; and that, instead of relying on a private company to do disinfection, the sanitary service should be provided with the facilities for performing disinfection itself.

Homage to Professor Laveran.

Almost the whole medical profession of Algiers has united in placing in the military hospital of Constantine, on the spot which served Laveran for a laboratory, and where he accomplished his memorable works, a medallion commemorating the discovery of the parasite of malaria in 1880, which discovery, together with Laveran's other works, won him the Nobel prize in medicine last year. Another commemorative medallion has been placed in the hall of honor of the hospital by the military physicians.

BERLIN LETTER.

(From Our Regular Correspondent.)

BERLIN, Oct. 22, 1908.

Death of Althoff.

The former prime minister, Friedrich Althoff, died October 20, aged 69. We have repeatedly had occasion to speak of him in these letters, and always with the highest praise for what he accomplished in the field of general, social and humanitarian effort. In the twenty-five years during which Friedrich Althoff belonged to the Prussian state department of education, he was the most prominent personage of this department, not excepting the minister who was his chief. With his remarkable talent for organization, his extensive knowledge, his inflexible energy, his profound knowledge of men and his skill in diplomacy, he accomplished important results for the medical profession and for the educational interests of Prussia, and no progress in this line in the last two decades has been achieved without his aid, and generally under his initiative and leadership. The campaign against tuberculosis, against cancer, and against infant mortality, the postgraduate instruction of physicians and medical education, all owe to him an extraordinary debt. The reconstruction of the Charité, which since its completion constitutes for Berlin one of the largest and best organized hospitals in the world, was really accomplished by his energy. Like most great men he had the faults of his virtues. He was feared on account of his frequent abruptness and lack of regard for others. Personal feeling for others was often enough obscured by his interest in the matter under consideration, and many a learned man has fallen a victim to this trait of his character. The position in which he was placed in which he had plenty of opportunity to learn the weaknesses of men, made him to a certain extent a cynic. It is not, therefore, to be wondered at that Althoff had many enemies, and that the saying applies to him: "The picture of his character in history varies because confused by the hatred and favor of partisans" (*Von der Parteien Hass und Gunst verwirrt, schwankt sein Charakterbild in der Geschichte*). His name will never be forgotten in the history of education and of the medical profession in Prussia.

Personal News.

Professor Naunyn, the highly esteemed clinician, until recently at Strasburg, had to undergo lately an operation for a complaint which gave rise to serious anxiety. It was feared that there was a malignant tumor of the cecum. At the operation, which was done by Professor von Eiselsberg in Vienna, it was fortunately demonstrated that there was merely a benign cystic tumor.

The director of the Düsseldorf Academy for Practical Medicine, Privy Counselor Professor Witzel, has resigned his position. The results which the Düsseldorf academy has so far accomplished are surprisingly small, and the blame is laid chiefly at the door of the management. As, moreover, differences between Witzel and the other professors of the academy have often arisen, Witzel has decided to sever his connection with the academy.

The noted physiologist at the university at Königsberg, Professor Hermann, and the renowned director of the pharmacologic institute of Strasburg, Professor Schmiedeberg, each celebrated recently their seventieth birthday, and consequently will have to retire from their positions before long. It is to be hoped that it will be possible to find suitable successors for these men. Dr. F. Bezold, professor of otology at the university of Munich, well known for his contributions to his specialty, died there October 6.

Training of Pharmacists for Chemico-Physiologic, Microscopic and Bacteriologic Investigations.

In Germany the pharmacists have very frequently installed laboratories in which examination of urine, sputum, etc., is done for physicians and even for patients. For a number of years the sharp competition between these laboratories and the institutes for medical diagnosis which are conducted by physicians has increased, and the pharmacists are bestirring themselves for this reason to make their laboratories more efficient. In accordance with this the pharmaceutical council for the province of Berlin (the pharmacists have also in Prussia an official national professional representative organization like that of the physicians), passed a resolution in March to propose to the minister of education to make compulsory the study of chemical, physiologic, microscopic and bacteriologic examinations, so far as needed to assist the physician in recognition of disease, and require examination in them in the state examination for pharmacists. From the medical standpoint, such a request must be opposed, and this was done at the time by the *Deutsche medicinische Wochenschrift*. It was there shown that the days in which most physicians did not possess sufficient knowledge for such examinations have fortunately passed, and that therefore the old custom of allowing the apothecary to make uranalyses and similar examinations, had also been finally done away with. It was also shown that the pharmacist is a layman who can not utilize his material according to the requirements of medical practice, because he lacks a knowledge of conditions in the whole field of medicine. The department of education took the same view, for in its answer to the request of the pharmacists the position was taken that a necessity for their demand could not be recognized. It was stated: "The proposed training does not belong to that which is necessary for the calling of apothecary. It must for this reason be left for the apothecaries themselves—so far as it seems necessary to them—to secure the knowledge and skill in question." Physicians will surely be grateful to the minister for the stand he has taken in this matter.

The Campaign Against Foot-and-Mouth Disease.

For some years the distinguished Greifswald hygieniest, Professor Löffler, one of the oldest pupils of Robert Koch, has been attempting, at the request of the minister of agriculture, to find a serum to combat foot-and-mouth disease in cattle. Löffler had reached results that seemed to promise well, but his serum has as yet no permanent success to record. During his research an unfortunate mishap occurred to this scientist. The foot-and-mouth disease spread from the animals employed in his investigations to the healthy animals of the neighboring farms, and their owners suffered considerable loss. In consequence of this they made complaints for damages against Professor Löffler, and suits have been begun. Should the trials end with an unfavorable verdict against Löffler, the scientist would be put to considerable expense. On account of his circumstance his investigations have been at a standstill for two years. Lately they are said to have been taken up again at the request of the minister of agriculture, and in order to avoid another undesirable experience of the kind, they are to be conducted at an institute on an island off the coast, so that all risk of injury to the environment may be excluded. In this institute the serum discovered by Löffler is to be further tried and manufactured.

Cholera in Russia.

Most other European countries as well as Germany have taken extensive measures to protect themselves against the invasion of cholera from Russia. Especially the department of health of Switzerland, in consideration of the fact that at the beginning of the winter semester considerably more than 2,000 Russian students return from their native land to the Swiss universities, has urged the cantonal sanitary authorities to increased vigilance with regard to the introduction of cholera. An order has been issued by the Prussian department of education that sanitary supervision of navigation and river commerce shall be introduced on the Russian boundary and that the train crews on trains coming from Russia shall be detained for the observation of the condition of the health of the passengers, and that persons traveling from Russia to Germany shall be required to report to the police within twenty-four hours after their arrival. However, travelers coming from Russia are not subject to quarantine.

VIENNA LETTER.

(*From Our Regular Correspondent.*)

VIENNA, Oct. 11, 1908.

The Third International Congress on the Care of the Insane.

This congress met under the auspices of the Psychiatric and Neurologic Society of Vienna, with Professor Obersteiner, the president of the society, in the chair. The interest taken in it was shown by the fact that 109 official delegates and representatives were present from Germany, Hungary, France, Great Britain, Holland, Spain, Italy, and other countries. There were more than 500 active members of the congress. One of its first acts was to elect honorary presidents for the consecutive days. Sir George O'Farrel of England, Professor Dubret of France, Professor Tamburini of Italy, and Professor Moeli of Germany were elected, and also chosen to act, together with the president, Professor Obersteiner, as a deputation to represent the congress at the unveiling, on the same day, of a monument to Professor von Krafft-Ebing, whose work on "Sexual Psychopathology" made his name known all over the world.

Many interesting papers were read, some of which I shall report briefly. It would appear that, in all countries, the care of the insane has made satisfactory progress within the last twenty years. Several papers afforded an interesting opportunity to compare the methods in use in Germany, Italy, Hungary, etc. The necessity for dealing with the insane as humanely and benevolently as possible has been recognized everywhere.

THE GRADUAL ABOLITION OF RESTRAINT.

Dr. Bresler's paper shows how the old-fashioned methods of restraining maniacs in solitary cells and strait-jackets have been done away with in all the larger asylums in Germany in proportion as the nursing staff has received better training. It has been recognized that, in order to be improved by his stay in an asylum, a patient must be cared for by competent nurses, and that therefore these latter must be well trained, and, if possible, be taken from the better classes.

CARE OF THE DANGEROUS INSANE.

Dr. van Deventer of Amsterdam read a paper on the care of the dangerous and criminal insane. He points out that there are two objects to be attained: Either the dangerous man must be restrained from doing harm, or he must be made a useful member of ordinary society. Asocial or anti-social patients ought not to be allowed to mingle with the other inmates of an asylum. Dr. van Deventer thinks that fully 60 per cent. of the "chronic" inmates of prisons are really insane, and therefore are not fit for prisons. They ought to be housed in institutions where appropriate treatment (good feeding, systematic work, suggestion, and training in self-restraint and the use of the will) might transform them into useful citizens. Young persons with criminal tendencies or inheritance ought to be reared and educated in special homes, for the influence of environment is enormous, and the development of criminal traits can be arrested or promoted by the events of early life.

FAMILY CARE OF THE INSANE.

The subject of family care of the insane, a mode of treatment which has been exciting especial attention of late, was

dealt with in the papers of Dr. Mathies of Berlin, Professor Moeli, Dr. Konrad of Buda-Pesth, and Professor Ferrari of Italy. As a rule, the results obtained are very good, and the burden on the budget of the asylum not heavier than if the patient had remained in the institution. Thirty to 35 marks (7.50 to 8.9) are paid monthly to the care-taking family for each patient cared for. Meanwhile, the beds of the asylum are free for patients with graver maladies. Over 30 per cent. of patients under such family care are able to resume their ordinary work after twelve months, and 41 per cent. after two years. The care-taker must bring up the patients once every four weeks for inspection and directions, and a staff of traveling inspectors looks after the welfare of the patients.

THE NURSING OF THE INSANE.

A paper of great interest for German readers was that by Dr. Scholz on "The Nursing Staff." In German-speaking countries only the lowest classes take up the calling of nursing. Dr. Scholz recommends improvement of pay and offers of other inducements to persons of the better classes to take up this important vocation. The care of the insane requires a delicate and tactful understanding of the patient's psychical condition, which is necessarily lacking in most of the present male and female nurses.

INSANITY AND INSURANCE.

The paper of Director Kögler appeals not only to physicians, but also to the general public. He spoke on "Insanity and Health Insurance." Lately the courts have uniformly ruled that insanity was the equivalent of total disability, and therefore entitled the holder of a health insurance policy to the full pension. Since then, the insurance companies have given special attention to insanity, and the figures on the subject are very interesting. Thus, in 27 out of every 1,000 cases of incapacity from disease, insanity was responsible. A remarkably high percentage of insane was observed among domestic servants. Of 1,000 insane insured persons, 57 were domestics, 40 industrial and agricultural laborers, 44 business men (clerks and shopkeepers) and 23 belonged to the liberal professions (law and medicine).

THE PSYCHIATRIC EXPERT.

The legal position of the psychiatric physician, especially from a forensic point of view, was discussed by Drs. Fischer, Stransky and Sölder. They agreed that the psychiatric expert ought to be a teacher rather than an authority, as he must influence a jury unaccustomed to a psychologic train of considerations. The cases on the borderline between normal and pathological conditions especially must be explained to a jury, in order to prevent cruel mistakes. Thus, the consequences of cerebral hemorrhage, incipient brain degeneration, and sexual perversions, not to mention neurotic conditions, often constitute etiologic factors in criminal proceedings.

INSANITY IN THE ARMY.

A paper received with the utmost interest was that by Dr. Drastich, staff surgeon in the Austrian army, on "The Care of Insane Soldiers in Wartime." The strain entailed by modern warfare on the nerves and the brain of the soldier often causes a complete breakdown before the enemy. In the Russo-Japanese war, where Dr. Drastich was with the medical corps of the Red Cross in the Russian ranks, 2,000 soldiers had to be sent home, as not only their own condition, but their demoralizing effect on the others was very troublesome. The military surgeon should be careful to remove from the rank and file during time of peace all soldiers with impaired psychic reaction. Sufficient training of the military surgeon in diagnosis of psychic diseases, and an efficient organization, in wartime, for removing insane patients to the hospital are essential to ensure freedom for the army from this dangerous incumbrance.

THE NEXT CONGRESS.

The next congress will be held in Berlin in the autumn of 1910. An international organizing committee, composed of representatives of all countries, has been elected to make the necessary arangements. With this transaction the official business of the congress came to an end. Visits to the splendid Steinhof lunatic asylum in Vienna, said to be the best in Europe, to the clinic of von Eiselsberg, where two trepanations for cerebral tumor were performed, to the psychiatric clinic, and to several other points of interest, were arranged. The efforts of the Vienna committee were much appreciated by the guests.

Pharmacology

"AN APPEAL FOR A SQUARE DEAL."

Further Misrepresentations and Evasions on the Part of the Abbott Alkaloidal Company.

Astute but unprincipled demagogues have long recognized the psychic value of raising the bogey of "persecution." Befogging men's judgment by means of an appeal to what may be called the commercial "unwritten law" has long been popular with those whose actions would not stand close scrutiny. Convince your hearers that you are the weak and innocent victim of some huge (albeit shadowy and unsubstantial) conspiracy, and your battle is half won. Appeal for sympathy and abuse your opponent if your case is weak, and the results may be similar to those so inimitably portrayed by Dickens in the case of "Bardell *vs.* Pickwick."

In a widely circulated pamphlet, entitled "An Appeal for a Square Deal," these tactics, as applied to the commercial side of medicine, have been adopted by the Abbott Alkaloidal Company—through its owner and president, Dr. Abbott—and are being played for all they are worth. Nor is this pamphlet the only medium through which the company carries on its campaign of misrepresentation; circulars, "form" letters (ostensibly personal), articles in its own and in other journals, are but some of the avenues through which the medical profession is "appealed" to.

The exposé of the Abbott Alkaloidal Company and its methods appeared March 14. The reply, so-called, in the form of the pamphlet referred to, appeared four months later. In this "appeal" Dr. Abbott poses as a martyr to a just cause, as a defender of the rights of physicians, and with an air of injured innocence frantically begs for sympathy. These appeals for sympathy are based on three charges or allegations:

1. That THE JOURNAL and the Council on Pharmacy and Chemistry have singled out Dr. Abbott and his company for attack and that these attacks have been malicious and persistent.

2. That the company has been refused a chance to reply.

3. That when replies were published, they were garbled.

IS THE ABBOTT COMPANY SINGLED OUT FOR ATTACKS?

"Why am I and my Company singled out for persecution when other men and other similar concerns enjoy complete immunity?"

"Personally I am convinced that there is a well-laid, carefully planned scheme to railroad the Abbott Alkaloidal Company to the 'scrap-heap' . . ."

The above are samples of the allegations. The Abbott Alkaloidal Company has not been "singled out" for attack, as our readers well know, though had it been we know of no concern whose methods would better have justified such a course. To such companies and concerns as have been exposed on many occasions in these pages, these claims to invidious distinction on the part of the Abbott Alkaloidal Company must seem amusing—especially to such as have insisted that *they* had been "singled out." THE JOURNAL has no apology to offer for what has been published, rather it owes its readers an apology for not exposing more of the Abbott Alkaloidal Company's products and methods. But read this!

"Since the 'big' attack of March 14, there has been a continuous guerrilla warfare on me through the columns of THE JOURNAL. Hardly a number appears in which there has not been some scurrilous allusion to me or my work—insidious, sneering, spiteful, bitter."

The above statements are as specific and direct as they are false. Seventeen numbers of THE JOURNAL appeared between March 14 and July 15, when the pamphlet from which the above is taken was published. During these seventeen weeks, aside from Prof. Matthews' paper (March 21), there did not appear in THE JOURNAL so much as a paragraph about Abbott, his company, his products or his publications. The only modification of this direct, positive statement is that Prof. Sollmann, in his series of articles on "The Broader Aims of the Council on Pharmacy and Chemistry," incidentally included in a list of nostrums of other manufacturers, "cactin"

in one place and calcidin in another. Instead of conducting a "guerrilla warfare" THE JOURNAL has purposely avoided any reference to the concern or its products, has deleted from published articles matter that reflected on them and refused to print communications that poured in after the exposé of March 14. Had we desired to publish more on the subject, there would have been no lack of material.

". . . . between Nov. 12, 1907, and March 14, 1908, the enormous total of 290 inches was given up to them (some 25 pages of solid brevier, all told) . . . ."

By actual measurement, the amount of space devoted to the concern between the dates mentioned was 13½ pages of *leaded* brevier (about 10 pages of *solid* brevier), *of which Dr. Abbott's own letter occupied over 3½ pages.* In other words, our matter actually took up, not 25, but 7½ pages of solid brevier (about 10 pages of leaded brevier). This point is trivial, but it demonstrates, with foot-rule accuracy, the wildly inaccurate and false statements with which this "appeal" abounds.

"Letters of ours replying to these JOURNAL attacks have been persistently refused publication."

"No opportunity having been accorded me to reply through the medium of attack. . . ."

Dr. Abbott's "repeated letters" consisted of four communications submitted for publication as replies to matter that appeared in THE JOURNAL. Two of these—the first and last received—were published. Two, one on "cactin," the other on calcidin, were returned, with letters to the effect that these "answers" did not discuss the points at issue, but were really advertisements.[1]

"Denied space for reply in THE JOURNAL A. M. A. . . . . we have been forced in self-defense to take some space for the discussion of these terrifically criticized points . . . ."

This is quoted from the "Appeal for a Square Deal" and is a charge specifically made with reference to our article of March 14. **We have received no communication for publication from this concern since the letter of Jan. 6, 1908, which was printed in The Journal, Jan. 18, 1908.** No refutation of the charges made, no "answer" in any shape or form, no request for space, nothing whatever in the way of a communication for publication has been received from Dr. Abbott, from the Abbott Alkaloidal Company, from the *American Journal of Clinical Medicine*, nor from any one connected with Dr. Abbott, his company or his "publication" since the article referred to was published.

WERE THE ABBOTT LETTERS GARBLED?

Dr. Abbott, both in his "appeal" and in the flood of letters which he has inflicted on the editors of medical journals all over the country, specifically charges THE JOURNAL with garbling and making "essential changes" in the letters we published.

"When letters of ours *have* been published, they have been garbled, distorted and used as 'pegs' on which to hang further attacks."

" . . . replies . . . . . were garbled, distorted and used as the basis for further attacks."

"Six hundred words of our reply were omitted, and about forty essential changes made in the text."

These statements have been made with such persistency, the changes have been rung on them so many times and they have been reiterated by so many journals whose editors undoubtedly have taken for granted that they were the truth, that probably Dr. Abbott himself begins to believe they are true. In any case, they help to bolster up the charges of "persecution" and "conspiracy" and to divert attention from the damaging facts we published.

The last of the above quotations refers to Dr. Abbott's letter replying to the H-M-C article. This letter occupied thirty-one pages of typewritten manuscript and contained over 5,800 words. When we published it we omitted, as we were careful to specify at the time, some matter of a pathetic, lacrimose character which had no relation to the subject, also references to the Council on Pharmacy and Chemistry (as the Council had had nothing to do with the matter), and the paragraphs which impugned our motives. In other words, the portions omitted were the introductory and closing paragraphs which had nothing whatever to do with the discussion of H-M-C, but were merely an Abbottesque display of verbal pyrotechnics in which mock-heroics and anathemas were about evenly distributed. As published (Jan. 18, 1908) Abbott's answer occupied three and one-half pages (over 5,200 words), the greater portion of which was so much beside the question that we felt obliged to apologize at the time for inflicting so much irrelevant matter on our readers.

Now, as to the charge of garbling: We know of no better method of disposing of this most ridiculous of falsehoods than by giving in parallel columns each sentence of the article as published which was in any way whatever modified. The article was addressed "*To the Editor*," and therefore the personal pronoun "you" was substituted for the impersonal form adopted in the various parts of the Abbott letter. These, as will be noticed, constitute the greater part of the "essential changes."[2]

AS IT APPEARED IN DR. ABBOTT'S MANUSCRIPT.	AS IT APPEARED IN THE JOURNAL.
". . . . the troubled surface of *the writer's* mind as to just what impression *he* intended . . . ."	". . . . the troubled surface of *your* mind as to just what impression *you* intended . . . ."
". . . . an evidence of purposeful deceit or *damnable* ignorance."	". . . . an evidence of purposeful deceit or *of* ignorance."
"The writer of The Journal article says:	*"Your* article says: . . . ."
". . . . I am antagonized on this point by *the presumable author of your anonymous communication;* but the fact . . . ."	". . . . I am antagonized on this point by *you;* but the fact . . . ."
". . . . and *my critic* ought to know this . . . ."	". . . . and *you* ought to know this . . . ."
"The writer of The Journal article insinuated that . . . ."	*"You* insinuated that . . . ."
"Cactin, *they insisted,* is a secret nostrum. . . ."	"Cactin, *you* insist, is a secret nostrum . . . ."
". . . . because identifying chemical tests were not available—and *we only* made it."	". . . . because identifying chemical tests were not available—and *because only we* made it."
". . . . that *The Journal* fails to inform *its* readers that . . . ."	". . . . that *you* fail to inform *your* readers that . . . ."
". . . . by *the* unfriendly attitude of the Council toward me and my products."	". . . . by *your* unfriendly attitude."
"The trademark, to which *The Journal* objects. . . ."	"The trademark, to which *you* object . . . ."

From the above it will be seen that the charge of "garbling" and "distortion" is as frivolous as it is false, and indicates the straits to which this company has been reduced in order to make a case.

MEDICAL JOURNALS MISLED.

Had the falsehoods and misrepresentations referred to appeared only in the matter sent out by the Abbott Alkaloidal Company, no notice would have been taken of them. They would have been ignored, also, had they been reproduced only

1. As evidence of the consideration shown Dr. Abbott, and in refutation of the charges that he was not given "fair play," we reproduce a letter sent to him with advance page proofs of the H-M-C exposé.

Dr. W. C. Abbott. Dec. 19, 1907.

Ravenswood Station, City.

Dear Doctor:—When we published the matter in regard to calcidin and cactin, you sent in a reply which we refused to publish for the reason that it was not a direct reply to the published statements, but was a general denial combined with a lot of matter that amounted to an advertisement of your firm and its products.

We are enclosing pages from this week's issue of THE JOURNAL containing matter to which you may wish to reply. We shall be glad to publish such reply, provided you confine such reply to an answer to the statements we have made. Our statements are very definite—in no way general—and if they are not correct, we shall be glad to publish any statements that you may make showing that they are incorrect.

2. In addition to this we should state that the final "e" in the spelling of all alkaloids, as for instance quinin, was dropped to conform to JOURNAL style, and for the same reason "upon" was changed to "on."

in such medical journals as exist through the patronage of nostrum promoters, as such journals are naturally opposed to the propaganda for reform in proprietary medicines. But the editors of a number of medical journals of a higher grade—"independent" in fact instead of only in name—have lent their pages to the defence of the Abbott Alkaloidal Company and have criticized THE JOURNAL for its "unjust attack." This, we are sure, they would not have done had they known all the facts. Had they read, for instance, our article of March 14—which Dr. Abbott lugubriously designates the "big attack"—they would have seen that the "Appeal for a Square Deal," instead of being an answer, only meets the charges with counter-charges—a method of evasion as weak as it is old. The exposé of the company which appeared March 14 was printed in brevier type, in the back part of THE JOURNAL, with no "scare heads" to attract attention. Many missed it, and among these, undoubtedly, were the editors of the journals last referred to. That they, and others interested may compare the charges with the evasive "answers" given in the "Appeal," we are making reprints of the March 14 article, a copy of which will be sent on receipt of a stamp for postage.

The various charges still remain unanswered—unless evasion and attempted justification constitute an answer. Those who desire to judge for themselves, however, can do so by comparing the reprint of our article of March 14 with the pamphlet, "An Appeal for a Square Deal."

Uncovering fraud and exposing misrepresentation and deceit is ever a thankless task, but THE JOURNAL would be remiss in its duty if matters of vital interest to physicians were ignored—and thus tacitly condoned—because of the unpleasantness which attaches to bringing such things to light. Had THE JOURNAL followed the line of least resistance the propaganda for reform would never have been instituted and the nostrum manufacturer would ever have sung the praises of the American Medical Association and its JOURNAL. We are inclined to think, however, that had this policy of non-resistance been pursued there would have arisen from an outraged medical profession a very forceful "appeal" to the effect that it, too, was entitled to "a square deal."

The Quack in Medicine and Pharmacy.

Having described the different varieties of the genus quack, the *Druggists Circular*, in an editorial, October, 1908, continues: "We are glad that improved college facilities, which are giving us better educated druggists, and better pharmacy and medical laws, the various pure food and drugs acts, and the awakening of the public out of the delusion under which they have been laboring as to the ability of a 'formula' to do or to undo the work of Nature, are putting quackery before the world in its true light, and are inducing druggists who have consciously or unconsciously been practicing it, to turn with disgust from its degradations."

There is no question in the mind of the editor of the *Circular* as to what constitutes a quack. He gives the following definition with which few will disagree: "A quack is a man who, not having qualified for the practice of medicine, still sells his advice and prescribes his drugs, claiming that they will prove efficacious in relieving or curing disease. Professional physicians very properly refuse to have any more dealings than is necessary with such a person. Often the quack is a man who travels around so as to strike town about the time that county court or the agricultural fair opens, and occasionally he is so successful as to be able to open a factory and pay large sums to the newspapers for advertising and for abusing the druggist who dispenses official preparations on physicians' prescriptions. On the other hand, the quack may be a retail druggist with a ready-made 'cure' for consumption, cancer, Bright's disease, scrofula, dyspepsia, and the whole catalogue of ills. Maybe he offers the same preparation as a cure for all these complaints, or he may have a different one for each. We once heard a druggist say that he had seen labels on a brother druggist's own preparations which would be a credit—or a discredit, we have forgotten which it was he said—to the worst kind of 'patent medicine' proprietor."

GARDNER'S SYRUP OF HYDRIODIC ACID.

Report of the Council on Pharmacy and Chemistry.

The following report on Gardner's Syrup of Hydriodic Acid was submitted to the Council by a subcommittee:

This product was first taken under consideration in February, 1906. Reference to several committees was necessary, on account of the peculiar claims for the pharmaceutical, and especially the therapeutic, superiority of this preparation. At this time, as the Council did not have the necessary facilities for investigating therapeutic claims, the product was approved by the Council.

Since this time, however, the manufacturers have laid especial stress in their advertisements on some highly improbable claims, stating, for instance, that this Syrup of Hydriodic Acid possesses "all the advantages, with none of the objectionable symptoms caused by potassium iodid, or other forms of iodin medication." To one with even an elementary knowledge of chemistry, the absurdity of this statement should be evident. The alkaline reaction of the tissues makes it impossible that hydriodic acid should persist as such in the body. In fact, the iodin must circulate in precisely the same form, whether administered originally as potassium iodid or as hydrogen iodid. The qualitative identity of the therapeutic actions is further proof of this fact, were such needed.

Since the most important objectionable symptoms of iodid medication arise after the absorption of the drugs, and since hydrogen iodid is conceded to be readily absorbed, it is evident that these symptoms must be equally liable to occur with hydrogen iodid as with potassium iodid, provided that equivalent doses of iodin are administered. An apparent difference in clinical results would arise if the one drug is habitually given in smaller doses than the other. Since, however, the iodin is present in the body in precisely the same form, whether it is administered as a hydrogen iodid or potassium iodid, it is evident that a given degree of therapeutic effect would correspond to an identical tendency to iodism, whichever drug was used. If, as appears to be the case, the use of hydriodic acid is commonly restricted to those cases in which only minimal doses of iodin are required, the relative infrequency, or even absence of symptoms with such doses would not prove that the drug itself is less apt to cause them than is the potassium salt.

These facts are in reality self-evident; but since the Council now has the proper facilities for obtaining the views and experiences of clinicians, it voted to submit the statement in question to its staff of clinical consultants, and to be guided by their advice.

OPINIONS OF THE CLINICAL STAFF.

The following is an epitome of the replies of the eleven members of this staff who had used the article or who expressed an opinion to the questions sent out by the Council:

1. QUERY: "Do you think it possible that such a preparation could be devoid of the usual effects of iodin preparations?"

Eight reply that they consider this, *a priori*, impossible; three stamp the statement as highly improbable, but do not care to say that it would be impossible. One of the correspondents remarks: "While distinctly taking the position that under many conditions we must accept clinical results which we find not explainable by our theoretical knowledge, where the conditions are so simple as in this case and where we know that the iodin, whether administered as hydrogen iodid or potassium iodid, must behave in the same way, after absorption, I believe that no properly educated and correct thinking physician can or will, after due consideration, fail to reject the claims of superiority made by the proprietors of this preparation."

2. QUERY: "Would you consider it necessary to make clinical experiments to settle this question?"

Seven of the correspondents consider this superfluous; four of these have had some experience with the article. Four, who have not used this product, consider a clinical test advisable. Under Query 3 we discuss the results of such tests.

3. QUERY: "When using Gardner's Syrup of Hydriodic Acid, have you ever noticed from it any of the objectionable effects of iodin preparations?"

Six of the correspondents have not used it, or are uncertain whether or not they used the product made by Gardner. One correspondent remarks: "Never used it. Repelled by claims of superiority which exaggerate disadvantages of potassium iodid and overlook the small amount of iodin used in the preparation advertised." The five clinicians who have prescribed the preparation report as follows: 1. Objectionable iodin effects in two cases, both patients being intolerant of all iodin preparations. 2. Has only prescribed it once or twice, but thinks he has seen iodism in one case, some years ago; does not recall clearly. 3. No; but has used this make very little, and then always in very small but continued doses. 4. No, but always used it in small doses. 5. Yes, several cases in children; typical coryza, etc., with doses of three drams three times a day.

CONCLUSIONS: It appears that typical iodism occurred in several cases, after doses corresponding to 10 grains or less of potassium iodid per day, and this in a rather limited clinical material. Objectionable iodin effects are, therefore, not uncommon. Several correspondents remark that the relative infrequency of iodism is easily explainable by the fact that syrup is rarely employed in conditions which demand an active iodin medication and that it is, therefore, always taken in small doses. In fact, the main if not the only point of superiority of the syrup appears to be in its flavor.

These clinical opinions and experiences, therefore, are in complete agreement with the judgment of the committee, namely, that the therapeutic claims made by the manufacturers for this article are exaggerated and misleading.

OTHER MISSTATEMENTS.

The above is by no means the only misstatement in the printed matter issued by this manufacturer. In the publication, "The Applications of Iodin," issued in 1907, there occur the following misleading statements which, since they refer to plainly chemical facts, did not require submission to the clinical staff:

That the administration of potassium iodid after meals greatly impairs its physiologic action "by its chemical union with the various food products" (Page 19). So far as the committee knows, potassium iodid does not combine with the food products in the stomach.

"Iodid of potassium, having an alkaline reaction, neutralizes the hydrochloric acid in the gastric secretions, causing indigestion, loss of appetite and depression" (Page 19). The United States Pharmacopeia states, under Potassii Iodidum: "Its aqueous solution is neutral or has a slightly alkaline reaction on litmus paper." The slight occasional alkalinity would be physiologically insignificant, and it is absurd to claim that this alkalinity causes "indigestion, loss of appetite and depression."

"The dose of iodid of iron is so small that the amount of iodin contained therein is of little advantage" (Page 19). As a matter of fact, the pharmacopeial average dose (1 c.c.) of the Syrup of Iodid of Iron contains as much iodin (0.85 grains) as a teaspoonful of Gardner's Syrup of Hydriodic Acid (0.83 grains).

"In hydriodic acid the iodin is in combination with hydrogen, one of the elements of the natural secretions of the body, and is, therefore, in physiologic harmony" (Page 21). No comment is needed.

It is implied elsewhere (Page 29) that potassium iodid decomposes more readily, with the liberation of iodin, than does hydrogen iodid. This is contrary to the prevailing opinion, and would require definite evidence before it could be accepted. It is also stated the large doses of potassium iodid in syphilis are necessary, because the gastric decomposition prevents complete absorption. This is certainly untrue, for potassium iodid is absorbed almost quantitatively.

These, and numerous other misstatements, constitute violations of Rule 6; and it is, therefore, recommended that Gardner's Syrup of Hydriodic Acid be removed from the list of remedies approved by the Council; it is further recommended that this report be published.

The Council postponed final action on the report pending its submission to R. W. Gardner. This having been done, and the reply of Mr. Gardner submitted to the Council, the above report was adopted and ordered published.

W. A. PUCKNER, Secretary.

Correspondence

A Plan for Checking the Growth of Irregular Schools and Destroying Charlatan Factories.

BROOKLYN, Nov. 5, 1908.

To the Editor:—If the profession be really desirous of destroying the freak systems, if it ever intends to abandon its miserable *laisser-faire* policy in "dealing" with great evils (in the soiled waters of which policy it would appear at times to be wholly steeped), and if it shall yet bestir itself and attain an actual solution of this problem, how, in all human probability, can it accomplish such a beneficent result? What shall the method be?

The right remedy lies so near that only an occasional Morton Prince sees it clearly.

Morton Prince, in the *Boston Medical and Surgical Journal*, Oct. 17, 1908, says that "the present-day crude and unscientific system of psychotherapeutics known as Christian science, mind cure, osteopathy, and what not . . . should, properly speaking, be looked on as opprobria on medical education rather than denounced as public evils."

We must teach systematically all the freak systems in the regular schools! The chairs of therapeutics must be amplified and must cover all the freak systems thoroughly. There must be no limit to their scope. There is really nothing absurd about such a proposition, for, scoff at the freak systems as we may, it is an undeniable fact that, individually, we know very little about them at first hand. All truth does not reside in us. We are not the divinely appointed, sole and sacred repositories and custodians of it, after all. We are entitled to possess, and it is our duty to acquire, the kernels of truth which lie buried in the potpourri of claptrap; to separate the wheat from the chaff, to tear out of the stroma of flubdub the modicum of parenchymatous truth always contained therein.

The irregulars cure a class that we do not cure—a bitter truth. "The man in the street" cares nothing for your codes and creeds.

The systems must be studied coordinately and in true perspective. No sectarian product could result from this. Instead of acquiring a hodge-podge of distorted knowledge concerning the irregular schools after graduation, the student would be fitted to outclass the whole tribe of licensed charlatans. Now we can only gnash our teeth at them. It would be like teaching knowledge of sexual matters in the home circle, instead of allowing children to acquire it on the streets.

Merely on historical grounds serious account could be taken of homeopathy. A man can study homeopathy at Rush or at the University of Michigan. That's precedent enough. Only he should not be permitted to limit his studies to one system.

The adoption and application of this plan would necessitate the appointment of associate or adjunct professors who would have to fit themselves for their posts by special study at the freak schools.

Has not regular medicine itself emerged out of a fearful tangle of false postulates, impossible dogmas, Arabic inanities, Galenic heresies and Hippocratic platitudes? Have we not had our many editions of Brown and of Paracelsus? On what meat have our medical Cæsars been themselves fed that they should balk even at osteopathic diet?

After the many centuries of tough feeding that we have endured, do we still suffer from intellectual dyspepsia? Can we even yet not eat thankfully the coarse diet with which the medical larder is stocked (as well as such delicacies and titbits as the side-chain hypothesis of Ehrlich and the opsonin therapy of Wright), digest its valuable content, egest the cellulose of rot and buncombe, and grow yet fatter? Aye, and even say a grace to Asklepios before the feast! We are eating this very diet as it is, swallowing psychotherapy and all the other cults with many a grimace. Let's put a better face on it. That's all. Let's swallow the pill gracefully.

Teach the freak systems for what they are worth, and in so doing destroy the incentive of patients to consult sectarian practitioners, thus absorbing the sustenance of the latter at its very source. They would soon suffer inanition. Legislation has done no more than recognize and license the

freak systems and give representation to them on our examining boards. This is not a cure, nor yet a palliative. Indeed, it safeguards, wet-nurses and perpetuates these systems. It lies with ourselves to deal with a subtle enemy in a subtle fashion. The fire must be fought with the water of a subtly adequate resourcefulness, not through a legislative fire department through whose hose runs the kerosene of expediency and compromise.

Will the reactionaries rise up from their standpat quagmire, vainly strive to shake off the mud that tenaciously holds them in their miserable slough, and then declare this to be the greatest and most comprehensive scheme ever offered for a wholesale exploitation of quackery? Hark, hear ye not their hoarse croaks even now?

Whom have we to thank for the present demoralizing relationships between the regular and irregular schools, if not the reactionaries? Why be guided longer by our clay-footed idols? Let medicine see the birth of a Young Turk party which shall ask for bread; long enough have we been served stones, garnished with sauce *laissez-faire*.

Can we not learn a lesson from the phagocytes, whose methods we study with such assiduity? In the human body's admirable scheme of things there is no license bureau for pathogenic bacteria. Let us invoke the opsonin of a broader type of medical school to the end that the professional blood stream be cleared of its unwholesome elements.

ARTHUR C. JACOBSON, M.D.

Nitrite Poisoning from Ingestion of Bismuth Subnitrate.

NEW YORK, Nov. 2, 1908.

To the Editor:—Your editorial in regard to the danger from absorption of nitrites in the administration of large doses of bismuth subnitrate is very much to the point. To obviate this danger I have been employing the hydrated bismuth oxid for the past year with good results. The ingestion of this compound results in bismuth and water after passing into the intestines and is harmless even in large doses such as are required for Roentgenologic work. W. H. DIEFFENBACH, M.D.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Dr. McCormack in Ohio.

Dr. J. N. McCormack has just concluded a most successful tour of Ohio, having devoted the month of October to work in that state. The itinerary included Dayton, Springfield, Piqua, Ada, Fostoria, Fremont, Marion, Circleville, Portsmouth, Ironton, Jackson, Gallipolis, Athens, Marietta, Newark, Delaware, Wooster, Cleveland, Elyria, Youngstown, Akron, New Philadelphia, East Liverpool and Cincinnati. Reports from these cities are unanimous to the effect that the meetings were well attended and that the public manifested marked interest in the work. Circumstances were peculiarly favorable in Ohio, owing to the careful work along educational lines that has been carried on by the State Committee on Medical Legislation for the past year.

At Springfield a large audience was present, Gen. J. Warren Kiefer, member of Congress for the district, presiding. At Piqua the meeting was held on Sunday afternoon in the Y. M. C. A. Auditorium, which was "filled by a representative audience, swelled by the presence of nearly every medical man in the city, besides a number from neighboring places." Following Dr. McCormack's address, the clergy of the city spoke, testifying to the value of his work. The meeting was designated by the local press as one of the most interesting and valuable which has been held in the city for some time.

At Ada the audience was larger than could be accommodated. The Ada *Record* says: "The big auditorium was packed with an audience that even filled the rear aisles and all were intensely interested in the very able address, which will certainly leave a lasting impression for good in the community." The Ada *University Herald* says: "Seventy-five people stood in the aisles and doorways of the Presbyterian Church last Monday evening, unable to find seats. . . . The lecturer spoke for two hours to a crowded house, holding the interest and attention of the audience to the end."

At Fostoria the meeting was held in the armory and the audience filled the building. The Fostoria *Times*, beside an extended account of the meeting and an abstract of the lecture, comments editorially on the importance of the work being done by the Association and says: "The lecture by Dr. McCormack last night not only was instructive . . . but also is significant of the movement of the medical profession to a higher plane politically. Right here in Fostoria the coming problems are sanitation, water supply, disease prevention, smallpox eradication, sewage disposal, clean streets, fire protection in public buildings. . . . It is but a step from the cure of the body to the cure of the ills of the body politic." Following Dr. McCormack's address, remarks were made by ministers, the superintendent of education, etc., and arrangements were made for the organization of a committee to provide lectures on public hygiene and meetings in the future along the lines recommended by Dr. McCormack. It is estimated that nearly 500 people attended the Fostoria meeting. At Fremont unfortunate weather conditions served to reduce the size of the audience, but the press of the town was none the less hearty in its commendation.

At Marion a large audience filled the First Presbyterian Church and showed great appreciation of the address. A number of the ministers of the town, prominent members of the women's clubs, the superintendent of schools and others spoke, endorsing the work of the Association and pledging their support in carrying it on. The Marion *Mirror* states that following the meeting a local sanitary defense league was organized.

At Ironton a most successful meeting was held. The *Morning Irontonian* says: "Dr. J. N. McCormack . . . addressed an audience that filled to its capacity the large church which had been thrown open for the occasion. For almost two hours the speaker held the closest attention of the large and intelligent audience. . . . The keynote of the address was organization and cooperation. . . . His suggestions culminated in a motion by Rev. Dr. Jackson of the First Presbyterian Church that a committee be appointed composed of representatives of the medical profession, the ministry, the schools, the civic society, the women's clubs and the press, to put into execution the plan of campaign mapped out by the speaker. . . . The thoroughly enthusiastic and highly enlightened audience passed out of the church to spread the gospel of good health and clean morals throughout the community. The fruits of the meeting will be manifest in many ways in this community for years to come."

At Newark the well attended meeting was presided over by the chairman of the city school board. At Delaware a large audience filled the chapel of Ohio Wesleyan University. The meeting was presided over by Prof. R. T. Stevenson. At Youngstown an interested and enthusiastic audience was present, and arrangements were made to hold a meeting in the near future to organize a local health league.

Dr. McCormack was accompanied throughout his tour by officers of the state association. Dr. D. R. Silver of Sidney, the president, and Dr. J. H. J. Upham, of Columbus, the secretary of the Ohio State Medical Association, devoted a considerable amount of time to this work. A number of the councilors also took part in the meetings in their districts. The effect of this campaign for improved health conditions can not fail to be apparent in Ohio in the future.

Registration Time Limit Upheld by Supreme Court.

The Supreme Court of Michigan has just rendered a decision in a suit brought under the law regulating the practice of veterinary medicine, which is of importance owing to the general principle involved. The law was passed in June, 1907, and provided that all persons who had been engaged in the practice of veterinary medicine for five years preceding the passage of the act must register before the state veterinarian board before Jan. 1, 1908, or be prohibited from practicing in

the state. Suit was brought to determine whether this provision of the law was mandatory on the board or not. On an appeal to the higher courts, the Supreme Court decided that practicing veterinarians who failed to register before Jan. 1, 1908, can not now be registered and continue to practice by virtue of their previous practice.

Duties and Opportunities of County Health Officers.

In the November *Mississippi Medical Monthly* appears a letter, published as an editorial, from Dr. Robert Donald, Hattiesburg, one of the health officers for the state, in which are discussed the work and especially the possibilities of the county health officers.

"It is a fact well known to me," says Dr. Donald, "as well as to all of the doctors and most of the people of this state, that numbers of physicians, holding important positions over the state as guardians of the public health for their respective counties, are only noticeable in their county and state medical societies by their very conspicuous absence. It is also a fact that these gentlemen are most uniformly apathetic as regards important affairs of public health in their respective communities and are only aroused from this lethargic state once a month to march up to the chancery clerk's office and sign the receipt stub for the ridiculously small pay warrants allowed them by painfully economical (in matters of public health) boards of supervisors. It is, furthermore, a well and commonly known fact that the service rendered by the average county health officer is not worth one cent more than he is paid. . . . As county health officers let us make ourselves worth more than the paltry fifteen or thirty dollars we are now grudgingly given."

There is no question that in many states the county health officer system is utterly farcical and worthless. While the county spends thousands of dollars for courthouses, jails, sheriffs, county attorneys, judges and juries to protect property, it often limits its entire expenditure for the protection of life and health to the ridiculously inadequate amount paid to the physician in the county who happens to have the strongest political pull. In many cases the recipient of this gratuity does not consider that he owes the people of the county anything in return. As Dr. Donald says, the county health officer is often not worth even the pittance which he receives. With the recent enlightenment of the profession and the public the time has come to put an end to this ludicrous and medieval system and to insist that each county and state shall provide an effective protection for its citizens against typhoid fever, smallpox and tuberculosis, as it does against holdup men and safe blowers. One of the first steps in such a reformation will be for self-respecting physicians to refuse to do anything except modern, up-to-date, sanitary work and also to refuse to do such work unless they are paid on the same basis that the state's attorney and county judge are compensated.

Regarding medical legislation Dr. Donald says: "It is the continual cry of the medical profession, 'Legislate! Legislate!' when our code of laws is crammed with numbers of good medical laws and none of them, or rather but few of them, are being enforced, when their proper general and uniform enforcement would result in untold good for the people and when, having shown them what a good thing it is, we shall have almost anything at their hands in return for what we have done. . . . Let us have done with this cry of 'Legislate!' and get to work."

There is a constant tendency on the part of the medical profession to attempt to find relief for all the ills of the body politic by adopting a new law or an amendment to an old one, when, in the majority of cases, the laws already in existence would be amply sufficient were they properly enforced. For instance, it is unnecessary to attempt to prove that a quack or a faker is practicing medicine within the meaning of the medical practice act when it is much easier and more effective to show that he is a common swindler. If satisfactory health regulations are ever secured, it will be by using existing laws to the fullest possible extent and even by risking an unfavorable decision occasionally, rather than by staying carefully within the conventional interpretation of the law, refusing to risk an adverse decision for the sake of the health of the people. As lawyers will testify, quite as much of our existing law consists of decisions as of statutory enactments. It would be well to have a few test cases brought on some fundamental principle. For example, it has been decided that the state owes it to the individual citizen to furnish him protection for his life and property from mob violence. If a riot breaks out and the citizen's property is destroyed, he can look to the state for compensation. If the state allows its water supply to be contaminated and the citizen contracts typhoid fever thereby, resulting in loss of health and business, why can he not hold the state responsible and compel it to indemnify him for his loss? If an epidemic of yellow fever, resulting from the carelessness of the state in furnishing proper sanitary protection, causes a quarantine and loss of business to merchants thereby, why can not the state be held responsible for paralysis of business through quarantine as well as for loss through mob violence? If the financial liability and responsibility is once properly determined, there will be no further difficulty in securing abundant funds for sanitary work in each county and state. Dr. Donald's letter is most timely and suggestive, especially in the South, where public sanitation is of greater importance even than in the North.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

FOURTH MONTH: FIRST WEEKLY MEETING.

General Subject for the Month: Dislocations and Diseases of the Joints.

ANATOMY.

Synarthrosis, amphiarthrosis, diarthrosis; subdivisions of each. Structure of true joints; articular surfaces, articular cartilages, capsular and accessory ligaments, synovial membrane, synovial fluid, synovial fringes, intra-articular ligaments. Blood vessels, lymphatics and nerves of joints. Fixation of joints by ligaments, muscles, cohesion and atmospheric pressure.

DISEASES OF THE JOINTS.

A. PATHOLOGIC CLASSIFICATION.*

1. Acute traumatic (non-suppurative). 2. Suppurative. 3. Tuberculous. 4. Chronic (non-tuberculous) arthritis: (a) serous, (b) ulcerative, (c) ankylosing, (d) formative, (e) fungous. Generic Pathology.†—1. Synovitis, may be (a) inflammatory (infectious, tuberculous, syphilitic, gonorrheal, typhoid, etc.), or (b) trophic (trophic, metabolic, senile, arteriosclerotic, toxemic, etc.). 2. Osteoarthritis may be (a) inflammatory (infectious, tuberculous, etc.), or (b) trophic (trophic, metabolic, toxemic, etc.).

B. CLINICAL CLASSIFICATION.*

1. Acute Synovitis.—Symptoms, pain, heat, redness, swelling, impaired function, malposition, muscular atrophy. Clinical course.
2. Chronic Synovitis.—(a) Chronic serous, (b) from muscular atrophy after acute, (c) foreign bodies in joint, (d) with infections, gonorrhea, etc., (e) intermittent form.
3. Infective Arthritis.—Follows osteomyelitis, serous synovitis, fibrous synovitis, or is primarily suppurative. Etiologic infections, gonorrhea, influenza, pneumonia, typhoid, rheumatism, scarlatina, etc.; varying pathology of each.
4. Arthritis Deformans.—Varieties, symptoms.
5. Tuberculosis of Joints.
6. Charcot's Joint Disease.—Arthropathy.
7. Spondylitis Deformans.
8. Wounds and Sprains.
9. Hysterical Joints.
10. Loose Bodies in Joints.

REFERENCE WORKS FOR THE FOURTH MONTH.

*Keen: Surgery. Vol. II.
†Nathan: Am. Jour. Medical Sciences, April, 1906.
Bryant and Buck: Practice of Surgery. Vol. IV.
von Bergmann-Bull: System of Surgery. Vol. III.
Park: Surgery.
Fowler: Surgery.
International Text-book of Surgery. Vol. I.
Wyeth: Surgery.
American Text-book of Surgery.
Stimson: Fractures and Dislocations.

Book Notices

TEXT-BOOK OF PHYSIOLOGIC CHEMISTRY. In Thirty Lectures. By Emil Abderhalden, O. Professor für Physiologie des Physiologischen Institute der Tierärztlichen Hochschule Berlin und Universitäts-Professor. Translated by William T. Hall, Instructor in Chemistry, Massachusetts Institute of Technology, and George Defren. First Edition. Cloth. Pp. 722. Price, $5.00. New York: John Wiley & Sons, 1908.

For some years there have been two universally recognized standard text-books covering the subject of physiologic chemistry, or at least covering certain fields of the subject thoroughly and satisfactorily. Hammarsten's "Physiologic Chemistry" gives in a compact form the main facts of the subject, condensing wisely and well the enormous literature, keeping well up to date in the frequent new editions, and improving steadily from year to year. But Hammarsten's is neither a readable nor an inspiring book—it is too densely crammed with facts for that, and so it remains merely an invaluable work of reference. Hoppe-Seyler's hand-book of analytical methods is devoted solely to the task implied by its title, of giving methods by which the complex substances concerned in biologic chemistry may be identified, and quantitatively estimated; it does not concern itself with the physiologic side of the subject, or with the theories and problems of the physiologic chemist. There have been, of course, numerous smaller manuals and laboratory guides in English, as well as in other languages, but the two books mentioned have practically had the field to themselves when a thorough treatise was desired. More recently, S. Fraenkel has issued a systematic work on the properties of the substances of importance to biologic chemistry, a descriptive work, while the large *"Handbuch der Biochemie,"* now being issued by Oppenheim, promises to furnish a complete compilation of the literature of physiologic chemistry prepared by investigators expert in the topics assigned to them. All these books, however, leave a gap in that part of the literature of most concern to the medical man, or to the person primarily interested in some branch of the biologic sciences other than biochemistry, namely, a readable discussion of the present status of biochemistry as it bears on the problems of physiology and medicine, and this gap is well filled by the book at hand. Probably the most readable book of the kind up to this time has been Bunge's delightful lectures on physiologic chemistry; but, unfortunately, Bunge's bias toward the "vitalistic" school of physiology prevented the book from offering an impartial view of the subject, and it has never been considered altogether reliable.

Abderhalden was at one time a pupil and assistant of Bunge. He has followed his old master's example in presenting his discussion in the form of lectures—and he seems to have inherited something of the master's skill in presentation. Having served several years as the chief assistant of Emil Fischer, and having been one of the most active in applying the skillful methods of this great chemist to the problems of physiology, Abderhalden has none of the bias of Bunge, but is a reliable observer and brilliant interpreter of biochemical processes. His book offers by far the most lucid and enjoyable account of the principles and problems of the chemical side of physiology, and it should be read by every physician who wishes to know how things are progressing in the sciences that are fundamental to our knowledge of the changes in the metabolic diseases. The first German edition was so warmly welcomed that it was exhausted in a short space of time, and we hope that the number of men with an interest in scientific medicine has now grown great enough in this country for a similar reception for the American edition. The translation is made from the first German edition, brought up to date in some particulars by Abderhalden. We most sincerely wish that the translators had also edited the work, so that it would have more satisfactorily represented the status of the subject in this country, for not a few American contributions and ideas have failed to receive consideration. As a translation it is fairly satisfactory and only a few errors can be detected.

Being presented in the form of lectures, the subject-matter gains in attractiveness and assimilability for the general reader. Abderhalden has a wonderfully wide fund of information, and discusses each topic from the broadest basis, selecting the evidence bearing on it from many sources and blending the heterogeneous materials into well-fitted foundations for the theoretical deductions. Medical readers will find that this book discusses physiology from more nearly the standpoint that they can best appreciate than almost any other work available in English, and that it is peculiarly attractive, both because of this and because of the success with which in each lecture Abderhalden carries the reader step by step from simple analogous processes to the more complicated conditions of intermediary metabolism. It is peculiarly a book which one can use for casual reading when odd quarter-hours are available, each lecture being distinct enough for independent reading. The style is such as to interest and entertain any person of even moderate scientific attainment, while at the same time imparting reliable information and stimulating one's interest in this fundamental branch of the most rapidly advancing side of medicine.

THE BABY: ITS CARE AND DEVELOPMENT. By Le Grand Kerr, Professor of the Diseases of Children in the Brooklyn Postgraduate Medical School. Cloth. Pp. 150, with illustrations. Price, $1.00. Brooklyn: Albert T. Huntington, 1908.

This book, which is intended for mothers, contains instructions for the mother's care of herself during pregnancy and for the preparation for the child, including descriptions of clothing for the infant and simple instructions for bathing and feeding it. The child's need of fresh air is emphasized, and the development, month by month, of a normal child, is described. Dr. Kerr emphasizes the importance of breast feeding, and states that only after persistent and patient efforts to improve the supply of breast milk should artificial feeding be resorted to. He gives simple formulas for preparing artificial feedings. On the whole, the book is one which physicians can safely recommend to their patients.

DEN STRIKTURERENDE TYNDTARMTUBERKULOSE OG DENS KIRURGISKE BEHANDLING. By Dr. Johan Nicolaysen. Paper. Pp. 65, with illustrations. Christiania: Steen'ske Bogtrykkeri, 1908.

Stricture of the small intestine from tuberculous ulceration is a rare affection, and Nicolaysen takes the opportunity to review it on the basis of eight cases on which he has operated at the Deaconess Institute in Christiania. The monograph is fully illustrated and must prove valuable to those especially interested in the subject.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

REMOVAL OF GUNPOWDER GRAINS FROM THE SKIN.

CATO, WIS., Oct. 15, 1908.

To the Editor:—Kindly inform me whether or not spots caused by gunpowder explosion can be removed from the skin after the wounds have healed, and if so, how? A. GEREND.

ANSWER.—If seen shortly after the accident, the gunpowder grains can be picked out very readily. Much of the powder can be removed by the same process later on although this is tedious and difficult. Watson, and later Keyes, advocated the use of a cutaneous punch or trephine similar to that used for removing comedones. This punch, which has an extremely small caliber, is placed over the speck of powder and pressed down firmly with a rotary motion. Care should be taken not to use too much pressure or to enter the skin too deeply. The small particle of skin which projects from the trephine can be snipped off and a soothing ointment used as an after-dressing. Hydrogen peroxid has recently come into general use in such cases. It is applied full strength or in a solution of 3 parts to 1 part of glycerin. Crile applies hydrogen peroxid until it has penetrated under the powder grains. The effervescence produced forces the grains out of their bed and they can then be readily removed with a pointed instrument.

DIRECTIONS FOR MAKING BREWERS' YEAST.

———, MISS., Oct. 29, 1908.

To the Editor:—Please give practical directions for making brewers' yeast. L. K.

ANSWER.—Probably in the absence of liquid yeast, the ordinary dry yeast in the form of yeast cakes will accomplish all therapeutic purposes for which yeast is applied. If it is desired to propagate yeast, however, a little brewers' yeast or a dry yeast

cake should be placed in a solution of sugar, preferably glucose (about 4 per cent.), to which some protein matter, such as peptone, has been added, to maintain the nutrition of the yeast. Malt forms an excellent medium in which to propagate yeast, but flour or meal would do. If the temperature is allowed to rise above 15 C. (59 F.) the top yeast will be produced; if the temperature is at or slightly below 10 C. (50 F.) both top and bottom yeast will be produced; while below 9 C. (48 F.) only bottom yeast is obtained. The vegetation of yeast ceases at temperatures below 5 C. (41 F.) and temperatures above 20 C. (68 F.) are not favorable for its propagation. Care should be taken in the growth of yeast to prevent the access of wild yeasts and other microorganisms.

SAFETY OF MILK FROM ACTINOMYCOTIC COW.

ARLINGTON, S. D., Oct. 31, 1908.

To the Editor:—Is there danger to a nursing infant to feed it milk from a cow that has "lumpy jaw?"

N. K. HOPKINS.

ANSWER.—So far as we know at present, there is no evidence to indicate that there is danger in feeding an infant with milk from a cow that has a typical, not far advanced, actinomycosis of the jaw, provided that the general nutrition of the animal is good. Since it is better to err on the side of safety, however, it is best to consider it unwise to use milk from any cow with "lumpy jaw" even though the disease is purely local and in the early stage. Certainly, if the actinomycotic lesion is the seat of more or less extensive secondary infection with pus microbes and penetrated by burrowing fistulas, the animal's general condition at the same time being below par, it can not be considered advisable to use the milk as food for infants.

WHEELER'S NERVE VITALIZER.

PITTSBURG, PA., Oct. 30, 1908.

To the Editor:—I recently saw a woman who has apparently acquired the drug habit from taking "Dr. Wheeler's Nerve Vitalizer," made by the J. W. Brant Co., Albion, Mich. When without the preparation this woman simply collapses, but in a short time after getting a new supply she is cheerful and bright in every way. I do not remember whether or not the composition of this preparation has ever been given in THE JOURNAL, but I should be glad to have the matter taken up.

THOMAS T. KIRK.

ANSWER.—In THE JOURNAL, April 11, 1908, page 1206, we published the result of an analysis of this nostrum which showed that it was composed chiefly of bromids. Quantitative determinations indicated the presence of 12.61 gm. of potassium bromid and 6.30 gm. of sodium bromid to each 100 c.c. of the "vitalizer." We also directed attention to the fact that many delicate women are dosing themselves with this or similar depressants believing that they are toning up the nervous system with a vitalizer. Instead of "nerve vitalizer," this nostrum might well be called "nerve devitalizer."

Association News

NEW MEMBERS.

List of new members of the American Medical Association for the month of October, 1908:

ALABAMA.

Hagood, R. B., Lowndesboro.
Sellers, N. E., Mobile.

ARIZONA.

Huffman, Ira E., Tucson.

ARKANSAS.

Pace, Henry, Eureka Springs.

COLORADO.

Wilson, Richard D., Holly.

CONNECTICUT.

Hupert, Julius, New Britain.
Noble, Henry S., Middletown.
Purinton, Charles O., West Hartford.
Sleeper, George E., Hartford.
Wilson, J. C., Hartford.

DELAWARE.

Pyle, J. P., Wilmington.

DISTRICT OF COLUMBIA.

Kemble, Adam, Washington.

ILLINOIS.

Johannes, H. C., Chicago.
Kappelman, John A., Evanston.
Leipold, A. T., Moline.
Logan, H. L., Salem.
Macy, H. C., Chicago.
Price, Oscar J., Chicago.
Reynolds, J. E., Chicago.
Steindler, Arthur, Chicago.
Ward, E. E., Sesser.
Was, F. P., Chicago.
Wessel, Perry H., Moline.

INDIANA.

Anderson, J. W., Odon.
Applewhite, Scott C., Seymour.
Botkin, C. E., Parker.
Beaty, W. H., Worthington.
Benham, Charles W., Vincennes.
Burkhart, T. A., Jasonville.
Caney, P. H., Vincennes.
Clifford, J. W., Worthington.
Clippinger, W. F., Inglefield.
Close, Thomas H., Scottsburg.
Davis, W. M., Worthington.
DeLong, Orville A., Azalia.
Empson, Blain, Seymour.
Ferguson, A. M., Huntington.
Gaylord, H. G., Indianapolis.
Gibson, C. W., Batesville.
Harris, W. W., Elletsville.
Henderson, S. T., Fort Wayne.
Hill, J. C., Westport.
Jackson, J. M., Lyons.
Kamman, Geo. H., Seymour.
Lallier, C. R., Terre Haute.
Lamberson, H. M., Connersville.
Logan, Henry V., New Salem.
Maris, J. I., Waymanville.
Mull, Phillip L., Oldenburg.
McDowell, J. D., Vincennes.
McQueen, William, Cataract.
Miles, James, Merom.
Perrin, D. L., Seymour.
Pohlman, A. G., Bloomington.
Porter, Mae G., Elnora.
Stewart, O. H., Orleans.
Thomas, W. E., Clarksburg.
Tremain, M. A., Adams.
Voyles, Harvey, Bedford.
Wagner, Sam C., Wakarusa.
Welch, J. A., Letts.
Welch, O. F., Westport.
Willson, S. C., Anderson.
Wilson, W. L., Scipio.
Wood, R. S., Wheatland.
Wray, C. M., Lafayette.
Wright, E. D., Scipio.
Yocum, Boaz, Coal City.

IOWA.

Besore, W. M., Macedonia.
Hudek, J. W., Garnaville.
Jones, C. L., Shenandoah.
Morris, T. S., Atlantic.
Newlon, W. H., Fort Madison.
Oldag, G. C., Germania.
Sawyers, C. E., Centerville.

KENTUCKY.

Cook, R. W., Adolphus.
Fewkes, John, Louisville.
Goodson, J. A., Dixon.

LOUISIANA.

Herold, A. A., Shreveport.
Packer, J. A., Selma.

MASSACHUSETTS.

Duffee, T. E., West Gardner.
Dunham, Geo. P., Lawrence.

MICHIGAN.

Bell, T. H. E., Montgomery.
Charles, C. H., Menominee.
DeFree, Peter J., Holland.
Griffith, A. J., Sand Creek.
Hartman, P. L., Colon.
Hixson, Martha E., Grand Ledge.
Holes, J. J., Battle Creek.
Hyndman, William, Cement City.
Lachajewski, S. J., Detroit.
Lewis, J. D., Sears.
MacDonald, T. H., Petersburg.
Martin, W. F., Battle Creek.
Marker, J. J., Bolose.
Murphy, J. J., Pontiac.
Smith, F. L., Commerce.
Taylor, E. C., Jackson.
Webster, Ben, South Haven.
Witter, Frank C., Ann Arbor.

MINNESOTA.

Adams, Bertram S., Hibbing.
Ashley, Paul L., Virginia.
Barringer, P. E., St. Paul.
Boyd, C. A., Redwood Falls.
Bray, E. R., St. Paul.
Daugherty, E. B., Duluth.
Dolan, Chas. P., Worthington.
Dumont, Frank, Mankato.
Farrish, J., Sherburn.
Farrish, Robt. C., Sherburn.
Franklin, Albert J., Blue Earth.
Leck, C. G., Austin
Pringle, A. P., Northfield.
Seeley, J. S., Faribault.
Schmitt, S. C., Blue Earth.
Smith, H. O., Shakopee.
Strang, David M., Northfield.
Wakefield, Kee, Hutchinson.
Wright, Chas. O., Luverne.

MISSOURI.

Spinzig, Felix, St. Louis.

MONTANA.

Ferris, P. A., Butte.
Frisbee, J. B., Butte.

NEBRASKA.

Bent, F. H., Hayes Center.
Bliss, R. W., Omaha.
Hirschmann, H., Omaha.
Hollenbeck, F. H., Lincoln.
Nicholson, Frank L., St. Paul.
O'Connor, H. Kathleen, Omaha.
Roeder, C. A., Grand Island.
Wilson, M. J., Falls City.

NEW YORK.

Ballard, F. C., Rushford.
Bell, G. H., New York City.
Beuermann, J. A., New York City.
Brady, Stanley, New York City.
Burdick, H. E., Montezuma.
Case, G. M., Elmira.
Doege, Herman E., New Rochelle.
Ehle, Vernon R., Gloversville.
Finch, Edw. B., New York City.
Gain, J. C., Jamaica.
Grove, C. W., Geneva.
Hallett, T. H., Clyde.
Hunter, D. W., New York City.
James, R. C., New York City.
Kathan, D. L., Schenectady.
Kilham, E. B., New York City.
Kinney, Virgil C., Wellsville.
Lamphear, Annette E., New York City.
Lubrecht, Chas. A., Brooklyn.
Lucey, J. D., Stapleton.
Lyman, F. R., Hastings-on-Hudson.
Maxon, F. C., Jr., Chatham.
McCafferty, J. A., New York City.
Moore, A. H., New Rochelle.
Post, W. L., New York City.
Powers, Martin T., Westernville.
Rachlin, Nathan H., Brooklyn.
Reynolds, Frank, Syracuse.
Ross, W. H., Sayville.
Rupert, T. D., Geneva.
Sawers, F. H., Rochester.
Seeligmann, Gustav, New York City.
Sheehan, D. J., Spring Valley.
Smith, H. B., Corning.
Stein, Arthur, New York City.
Stockwell, James K., Oswego.
Strachstein, Abraham, New York City.
Thomas, J. S., Flushing.
Waterman, Whitney, New York City.
Will, Emery F., Batavia.

NORTH CAROLINA.

MacNider, Wm. B., Chapel Hill.

NORTH DAKOTA.

Fisk, D. A., Carpio.
MacCallum, C., Portal.
Malone, B. Elizabeth, Minot.
Semple, James, Langdon.

OHIO.

Brown, Geo. A., Barberton.
Calhoun, J. T., Lisbon.
Calvin, H. M., Salineville.
Coombs, J. W., Camden.
Cowden, N. W., Germantown.
Douglass, C. T., Kalida.
Ireton, Frank A., Newtonville.
Fisher, Emerson W., Portage.
Krone, Henry, Hamilton.
Ryan, W. A., Dayton.
Sehipe, W. F., Middletown.
Tate, Chas. H., Dayton.
Warden, C. G., Cleveland.

OKLAHOMA.

Brodie, W. W., Tulsa.
Conn, L. D., Chant.

PENNSYLVANIA.

Ahlborn, M. B., Wilkes-Barre.
Chapman, L. E., Warren.
DeKay, J. Miner, Starrucca.
Klase, Harry E., Jerseytown.
Lawton, H. C., Yeagertown.
Light, J. J., Lebanon.
Martin, J. L., Pittsburg.
Percival, M. F., Philadelphia.
Walter, Georgiana, Christinia.

RHODE ISLAND.

Gardner, G. W., Providence.
Haberlin, J. H., Pawtucket.

SOUTH DAKOTA.

Rustad, E. L., Platte.
Sawyer, Ora O., Dell Rapids.
Subera, H. W., Sioux Falls.

TENNESSEE.

French, J. E., Memphis.

TEXAS.

Caylor, H. C., Canadian.
Lusk, H. N., Terry.
Maloy, E. D., Temple.
McDaniel, A. C., San Antonio.
Thomas, E. E., Frosa.

UTAH.

O'Donnell, M. Garrett, Vernal.

VERMONT.

Hurley, F. J., Bennington.

VIRGINIA.

Holladay, G. G., Portsmouth.
Nuckolls, Chester R., Hillsville.
Randolph, John, Arvonia.

WASHINGTON.

Monroe, W. A., Tacoma.

WEST VIRGINIA.

Waddell, Chas. W., Fairmont.

WISCONSIN.

Brown, A. L., Wausau.
Nolan, W. N., Sr., Kaukauna.
Senn, C. U., Adell.

WYOMING.

Roberts, W. H., Sheridan.

The Public Service

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Nov. 6, 1908.

SMALLPOX—UNITED STATES.

California: Berkeley, Oct. 3-10, 1 case; San Francisco, Oct. 10-17, 12 cases.
District of Columbia: Oct. 10-17, 1 case.
Illinois: Chicago, Oct. 17-24, 1 case.
Kansas: Wichita, Oct. 10-17, 1 case.
New York: New York, Oct. 10-17, 1 case.
Ohio: Cincinnati, Oct. 6-13, 2 cases.
Washington: Spokane, Oct. 10-17, 1 case, imported.
Wisconsin: LaCrosse, Oct. 10-17, 1 case.

SMALLPOX—FOREIGN.

Ceylon: Colombo, Sept. 5-19, 31 cases, 4 deaths.
Denmark: Copenhagen, Sept. 19-26, 2 cases.
France: Paris, Sept. 26-Oct. 3, 3 cases.
India: Rangoon, Sept. 12-19, 2 deaths.
Indo-China: Saigon, Sept. 5-12, 3 cases, 3 deaths.
Italy: Palermo, Sept. 12-26, 2 cases.
Mexico: Alvarado, Oct. 24, 15 cases, 1 death; Tlaco Talpan, present; Veracruz, Oct. 13, 1 case.
Peru: Callao, Sept. 26-Oct. 3, 1 case; Lima, 1 case.
Russia: Moscow, Sept. 19-26, 18 cases, 7 deaths; St. Petersburg, Sept. 5-26, 10 cases, 1 death.
Turkey: Constantinople, Sept. 28-Oct. 1, 14 deaths.

YELLOW FEVER.

Brazil: Manaos, Sept. 12-26, 4 deaths; Para, Sept. 26-Oct. 10, 4 cases, 4 deaths.
France: St. Nazaire, to Oct. 20, 11 cases, 6 deaths.
Martinique: Fort de France, Sept. 26-Oct. 10, 8 cases, 1 death.

CHOLERA.

China: Hongkong, Sept. 5-19, 6 cases, 6 deaths.
India: Rangoon, Sept. 12-19, 1 death.
Japan: Kokura, Oct. 1, present; Moji, Sept. 23-29, 15 cases.
Russia: General, Sept. 26-Oct. 3, 3,251 cases, 1,571 deaths.
Straits Settlements: Singapore, Sept. 5-12, 4 deaths.

PLAGUE.

Chile: Iquique, Oct. 5, 1 case.
Egypt: General, Oct. 7-13, 7 cases, 5 deaths.
India: Rangoon, Sept. 12-19, 5 deaths.
Indo-China: Saigon, Sept. 5-12, 20 cases, 17 deaths.
Peru: General, Sept. 22-28, 21 cases, 12 deaths, Callao, 3 cases; Lima, 4 deaths.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Nov. 7, 1908.

Patterson, R. U., capt., relieved from duty in command of Co. A, H. C., and ordered to report to commanding general, Army of Cuban Pacification, for assignment to duty.

Talbott, E. M., capt., assigned to duty as a commanding officer, Co. A, H. C., and ordered to proceed to Fort D. A. Russell, Wyo.

Lamson, Theodore, capt., leave of absence extended one month.

Ebert, R. G., lieut.-col., granted leave of absence for ten days.

LaGarde, L. A., lieut.-col., granted leave of absence for one month.

Dutcher, B. H., major, arrived at Plattsburg Barracks, N. Y., for duty.

Le Hardy, J. C., M. R. C., relieved from temporary duty at Ft. Casey, Wash., and ordered to return to his proper station, Ft. Lawton, Wash.

Morse, C. F., capt., granted leave of absence for one month, about Nov. 25, 1908.

Foster, D. E., dent.-surg., ordered to his home, Oklahoma City, Okla., for annuiment of contract.

Gunckel, G. L., dent.-surg., leave of absence extended 15 days.

Hussey, S. W., dent.-surg., ordered from Fort Sheridan, Ill., to Fort Benjamin Harrison, Ind., for temporary duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Nov. 7, 1908.

Von Wedekind, L. L., surgeon, detached from the *Alabama* and ordered to the *South Dakota*.

Stepp, J. P. A. surgeon, detached from the *Denver* and ordered home to wait orders.

Debsez, P. T., P. A. surgeon, detached from the *South Dakota* and ordered to the Pacific Fleet, sailing from San Francisco about December 5.

Horton, O. D., surgeon, detached from the Marine Recruiting Station, New York, and ordered to the Naval Recruiting Station, New York.

Boeert, E. S., Jr., surgeon, detached from the Naval Recruiting Station, New York, and ordered to the Marine Recruiting Station, New York.

Bucher, W. H., surgeon, granted sick leave for three months when discharged from treatment at the Naval Hospital, Las Animas, Colo.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

CALIFORNIA: Los Angeles, Dec. 1. Sec'y., Dr. Charles L. Tisdale, Butler Bldg., San Francisco.

DELAWARE: Regular, Dover; Homeopathic, Wilmington, Dec. 8-10. Sec'y, of Medical Council, Dr. Henry W. Briggs, Wilmington.

IOWA: Capitol Building, Des Moines, Dec. 8-10. Sec'y., Dr. Louis A. Thomas.

MARYLAND: Baltimore, Dec. 8. Sec'y., Dr. J. McPherson Scott, Hagerstown.

MISSOURI: Kansas City, Nov. 23-25. Sec'y., Dr. J. A. B. Adcock, Warrensburg.

NEW HAMPSHIRE: Concord, Dec. 29-30. Regent, Mr. H. C. Morrison.

OHIO: Columbus, Dec. 8-10. Sec'y. Dr. George H. Matson.

PENNSYLVANIA: Musical Fund Hall, Locust St., Philadelphia, Dec. 1-4. Sec'y. of Medical Council, Dr. N. C. Schaeffer, Harrisburg.

VIRGINIA: Lynchburg, Dec. 15-18. Sec'y., Dr. R. S. Martin, Stuart.

Diploma Mills in India.

The *British Medical Journal*, Oct. 3, 1908, states that several diploma mills are flourishing in India. They are said to exist in Calcutta, Lahore, Dacca and Bombay. State examining boards will do well to scrutinize carefully the credentials of any applicants from that quarter.

Texas June Report.

Dr. G. B. Foscue, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Waco, June 30 to July 2, 1908. The number of subjects examined in was 12; total number of questions asked, 112; percentage required to pass, 75. The total number of candidates examined was 105, of whom 83 passed and 22 failed. The following colleges were represented:

PASSED.

College	Year Grad.	Per Cent.
Medical Coll. of Alabama	(1893)	87.5
University of Arkansas	(1908)	82.6
George Washington Univ.	(1907)	88
Kansas Med. Coll.	(1904) 90.7; (1908)	81.4
Eclectic Med. Univ., Kansas City	(1908)	82.6
University of Louisville	(1890)	83.2
Tulane University of Louisiana	(1908) 83.5, 84.4, 86, 86.9, 87.5, 87.6, 89.3, 89.5, 90.2, 92.7.	
Rush Med. Coll.	(1893)	85
Coll. of P. and S., Baltimore	(1906)	83
University of Michigan	(1908)	87.6
St. Louis Coll. of P. and S.	(1904) 82.7; (1908) 78.2, 79.7,	85.5
Barnes Med. Coll.	(1907)	80.5
Kansas City Med. Coll.	(1905)	85
University of Buffalo	(1903)	89
North Carolina Med. Coll.	(1906)	75
University of Pennsylvania	(1899) 94.2; (1908) 82.9; (1908)	84.7
Willamette University	(1908)	82.7
Jefferson Med. Coll.	(1901) 87.2; (1907)	78
Memphis Hosp. Med. Coll.	(1908) 75, 76.5, 78.4,	81.7
Vanderbilt University	(1894) 91.3; (1898)	76
Meharry Med. Coll.	(1907) 85.7; (1908) 75,	76.3
University of Tennessee	(1895) 85.9; (1908)	81.8
University of Nashville	(1905) 78.9; (1907) 76.9, 88.5; (1908) 79.7.	
Chattanooga Med. Coll.	(1908)	81.4
Ft. Worth University	(1905) 84.2; (1908)	86.4, 86.4
Baylor University	(1907) 95.4; (1908) 78.4, 78.9, 81.5,	86.6
University of Texas	(1903) 90.9; (1905) 84.1; (1906) 89.8; (1907) 85.8, 87.6, 90.6, 90.6; (1908) 85.6, 86.1, 86.6, 87.4, 87.6, 88.6, 89.7, 90.4, 90.7, 91.1, 91.4, 92.1, 92.5, 92.8.	
Southwestern Univ. Med. Coll., Dallas	(1905) 87.5; (1908)	79.9, 82.1, 90.5.

FAILED.

University of Arkansas	(1901)	61.5
Hospital Coll. of Med., Louisville	(1904)	70.8
Tulane University of Louisiana	(1904)*	
St. Louis College of P. and S.	(1888)	56.9
Meharry Med. Coll.	(1908) 63.1, 64.9, 67.8, 71.3,	72.9
Knoxville Med. Coll.	(1908)	69.2
University of Nashville	(1907)	67.8
University of the South	(1907)	69.2
Memphis Hospital Med. Coll.	(1900)* (1908) 57.8, 67.4,	72.8
Chattanooga Med. Coll.	(1905)	72.2
University of Tennessee	(1888) 68.8; (1907)	68
Southwestern Univ. Med. Coll., Dallas	(1908)	72.1
Dallas Med. Coll.	(1903) 45.5, (—)*	

* Did not complete examination.

Maine July Report.

Dr. W. J. Maybury, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 7-8, 1908. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 72, of whom 67 passed and 5 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Kentucky School of Med.	(1906)	85.7
Baltimore Med. Coll., (1905) 83.7; (1906) 83.8; (1907) 77.2; (1908) 83.6, 84.6.		
College of P. and S., Baltimore	(1908)	87.2, 87.4
Medical School of Maine, (1908) 75.2, 75.9, 77.9, 79, 79.2, 80.1, 80.9, 82.1, 82.1, 82.3, 83.9, 84, 84.4, 84.6, 84.8, 86.4, 86.5, 86.6, 87, 88.8, 89.3, 90.3.		
Tufts College Med. School, (1905) 88.6; (1907) 87.5; (1908) 83.2, 83.7, 84.1, 85.6, 85.7, 87.4, 88.4.		
Boston University	(1908)	82.4, 83.9, 84.9, 88.4, 89.4
College of P. and S., Boston, (1906) 75.9; (1907) 83.6; (1908) 78.7, 80.3, 84.4, 85.8.		
College of P. and S., New York	(1908)	82, 82.5, 83.6
Jefferson Med. Coll.	(1908)	88.5
Hahnemann Med. Coll., Philadelphia	(1907)	87.6
Woman's Med. Coll. of Pennsylvania (1906) 88.5; (1908)		89.6
Medico-Chirurgical College, Philadelphia	(1908)	87.4
University of Vermont	(1908)	80.4, 88.8
Laval University, Quebec	(1908)	82.2, 84.2
McGill University, Quebec	(1908)	75.5, 87.6, 88, 88.9, 90.1

FAILED.

Medical School of Maine	(1908)	72.8
College of P. and S., Boston	(1908)	68.5, 69.9, 72.4
University of the South	(1905)	75.2*

*Received less than 60 in one branch.

Utah April and July Reports.

Dr. R. W. Fisher, secretary of the Utah State Board of Medical Examiners reports the written examinations held at Salt Lake City, April 6-7 and July 6-7, 1908. The total number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75.

At the examination held April 6-7, the total number of candidates examined was 9, of whom 8 passed and 1 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
College of P. and S., San Francisco	(1907)	83
Denver and Gross Coll. of Med.	(1907)	88
Georgetown University	(1906)	87.7
Northwestern Univ. Med. School	(1907)	84.6
Creighton Med. Coll.	(1907)	87.7
Jefferson Med. Coll.	(1902) 82.8; (1907)	83.9
University of Munich, Germany	(1903)	81.9

FAILED.

University of Louisville	(1905)	61.7

At the examination held July 6-7, the total number of candidates examined was 8, all of whom passed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Georgetown University	(1906)	80
Northwestern Univ. Med. School	(1908)	83.6
Rush Med. Coll.	(1895)	77.1
College of P. and S., Baltimore	(1908)	88.7
Washington University	(1905)	86.1
Jefferson Med. College	(1907) 89.7; (1908)	88.8
Medico-Chirurgical College, Philadelphia	(1908)	87

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with
Denver and Gross Coll. of Med.	(1907)	Colorado
Rush Med. Coll.	(1882)	Minnesota
Indiana Med. Coll.	(1888)	Indiana
Kentucky University	(1907)	Missouri
Baltimore Med. Coll.	(1901)	Georgia
Medical Coll. of South Carolina	(1898), (1899)	S. Carolina

North Dakota October Report.

Dr. H. M. Wheeler, secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, Oct. 6-8, 1908. The number of subjects examined in was 14; total number of questions asked, 85; percentage required to pass, 75. The total number of candidates examined was 12, of whom 10 passed and 2 failed. Five reciprocal licenses were granted at this examination. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Northwestern Univ. Med. School	(1908)	77
Bennett Coll. of Ecl. Med. and Surg.	(1908)	89
Keokuk Med. Coll., Coll. of P. and S.	(1908)	76
University of Minnesota	(1904) 91; (1905) 76; (1908)	84
Hamline University	(1908)	76, 82
Kansas City Med. Coll.	(1900)	75
Jefferson Med. Coll.	(1907)	78

FAILED.

Hamline University	(1904)* (1907)	71

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with
National Med. University	(1905)	Illinois
College of P. and S., Chicago	(1905)	Illinois
Bennett Coll. of Ecl. Med. and Surg.	(1907)	Illinois
Northwestern Univ. Med. School	(1907)	Minnesota
University of Minnesota	(1906)	Minnesota

*Percentage not given.

Miscellany

Mr. Kipling and the Doctors.

At the opening of the medical session October 1 at Middlesex Hospital, London, the address was made by Mr. Rudyard Kipling. His characteristic remarks have occasioned much favorable comment. The London *Spectator* calls it "such a speech as could only have come from a man of genius," and says that "the public has read his words with delight."

Mr. Kipling said that the world was divided into two classes, doctors and patients. The patients look on the doctors as non-combatants look on troops fighting in their behalf. Death is bound to win in the long run, but the non-combatants feel that the doctors will make the best terms possible on behalf of the non-combatants. This fight for life is one of the most important things in the world, so those who control this fight must be among the most important people in the world. In times of flood, fire, famine, plague, battle, murder, etc., physicians must report for duty at once and stay on duty until their strength fails.

But if physicians' work is exacting, so are the privileges great. They can pass through the most riotous crowds unmolested; by flying a yellow flag they can turn a center of population into a desert; by flying a Red Cross flag they can turn a desert into a center of population; if necessary, a twenty-ton liner can be stopped in mid-ocean until an operation is completed. On their order houses are pulled down or burned, and they can call on troops to enforce their orders. They are perhaps the only class which dares tell the world facts. The profession of medicine exacts from its practitioners the largest responsibility and the highest death rate in the world, said Mr. Kipling, in conclusion.

From the London *Spectator*, October 10, we quote: "Yes, Mr. Kipling is right; doctors are important people. In action we all acknowedge it. They belong not only to the 'privileged,' but to the 'ruling' classes. 'Doctors' orders' to a great extent govern the world of to-day. In how many departments of life, private and public, are they not supreme? The judge's sentence on the criminal is subject to the verdict of the doctor. Doctors can, and do, give pause not only to ocean steamers, but to the whole machinery of the state. How many cabinet councils have been postponed by a general practitioner? Great projects of reform are based on their evidence, and laws innumerable are made in accordance with their advice and carried out subject to their sanction. In the case of private individuals their rule and governance are no less absolute. Among the poor they have more influence than any one else who comes to them from without. The poor can not always afford to obey them; but the more respectable they are the more earnestly do they strive to do so. Take any village in the country in which there is an average good doctor; is he not the most quoted man in the parish?

"Think, too, what the men, and still more the women, have learned about health during the last few years. What clergyman but would be glad to have made such strides in teaching? The rich obey their doctors to an extent which is sometimes positively slavish. They live where they are told, and eat (and sometimes even drink) what they are told, and journey off to 'cures' at great distances where they are horribly bored, and send their children to this and that school in the most inconvenient places at the least convenient moments, all in accordance with the doctors' commands. Those who scoff at doctors when they feel well are the first to eat their words in time of illness, just as those persons who maintain a conventional attitude of 'don't care' toward the thought of death are almost always among those who make the most unremitting efforts to keep alive. As things are, it looks as though the influence of the doctors were likely to increase. For health's sake, Mr. Kipling says, men will bear to hear unpleasant truths; and now that mind and body are considered to work mysteriously but certainly on one another, their power will be restricted to no material field. They who have so long been accounted materialists have lately forced on the attention of the world the mysteries of physical and mental action and reaction—the fact that while health may

produce courage and hope, courage and hope may also produce health. Henceforth their sphere of activities will be widened, will indeed be without limit.

"The strange thing is that these powerful people belong to a profession which offers few prizes, and the members of which are for the most part, judging by the standards of to-day, very badly off. The public accords to them every privilege which can benefit itself; that is the public's way. If we rule out certain great discoverers in the realm of medicine, all the prizes go to the men who can afford to wait for them. The majority, the vast majority, of doctors work all their lives, many of them with all the heroism which Mr. Kipling has depicted, without hope of anything beyond what the ordinary professional man considers a maintenance. Social ambition and money ambition, those great mental stimulants which drive many men to their duty and a few to distraction, have no meaning for the average doctor. Yet do they work less hard?

"The highest death rate of any profession in the world! Mr. Kipling's last words have startled, we are sure, the majority of his readers. How often do we hear it said: 'Doctors never catch anything! Doctors never seem to take any harm!' An instant's thought would assure any sensible man that it is a sheer impossibility that they should be more immune than other people. In becoming a doctor a man runs more risk of untimely death in the service of the state than he does in becoming a soldier.

"May they, then, not claim from the world a little of that enthusiasm so readily accorded to their brothers in uniform? Should we not sometimes raise a cheer, in imitation of Mr. Kipling's good example, in honor of the great army in mufti, the thought of whom, as they move among us without the parade of war, so seldom quickens our pulse? Untiringly they protect our homes from those deadly and invisible foes who lurk about the luckiest doors. They bring us hope or sleep in our worst hours of pain or terror, when the door into the unknown stands wide open in front of us, or when we see the fearful reflection of its darkness on the pale faces of our friends. How many of us owe all that makes life worth living to doctors—the courage which comes of health, the companionship which gives value to every day, the lengthened sojourn of the old to whom love, memory, and custom bind us by a threefold cord, or the frail life of a delicate child who embodies every hope and ambition we possess. The doctors see us very often at our worst, and they make the best of us.

"Taking them as a whole, they have a good opinion of their fellows. They risk their lives for ours without the support of that discipline which, we are often assured, will alone induce men to such sacrifice. They keep our secrets without the fearful oath imposed on Roman confessors to strengthen their purpose. If a few black sheep exist among them, if cruelty—that worst curse of the moral nature—is wholly absent from no great congregation of men, if a few trade on the nerves of the community, if a few are tied up in red tape, that is only to say that doctors are human. After all, we may live long lives and come across none of those; whereas it is hard to find a person who owes no debt of gratitude to some doctor or doctors, and who has not known more than one the mainspring of whose existence was benevolence. The public no less than the profession should return thanks to Mr. Kipling. He has done what only a man of literary genius can do—he has heightened and deepened an almost universal sentiment by its strong and gracious expression."

Vanilla Versus Vanillin.—According to the investigations of Consul Julius D. Dreher of Tahiti, Society Islands (*Monthly Consular and Trade Report*, September, 1908), the world's production of vanilla amounts to only 1,221,000 pounds, while there is consumed in France alone vanillin to equal in strength 6,600,000 pounds of vanilla. In consequence of improvements in manufacture, it is now cheaper to use the chemical production (vanillin), which has no vanilla in its composition. The French colonists who produce more than one-half the world's crop of vanilla, ask that the fraudulent use of vanillin be prohibited by law. They appeal to the principle of the U. S. Food and Drugs Act that products should be true to their label, and desire that sellers be prohibited from using for a chemical product the name vanillin. They also ask that a duty be levied on vanillin equivalent to that paid by vanilla, and as vanilla pays 18 cents a pound, vanillin being 100 times more powerful than vanilla, should pay $18 a pound. The present price of vanillin is $3.33 a pound. The United States, while producing no vanilla, are the largest consumers thereof in the world. The vanilla bean is admitted free of duty, while vanillin pays $.80 per ounce, the 1907 imports amounting to only 100 ounces, worth $320.

Christmas Stamps for Tuberculosis Propaganda.—A special Christmas stamp has been issued by the National Red Cross for sale this Christmas season, the proceeds to be applied to antituberculosis work in the state in which the stamp is sold. Designed by Howard Pyle, the stamp is printed in three colors by the Bureau of Engraving and Printing, and the accompanying illustration shows the design. We commented some time ago on the use of such stamps in Sweden and Denmark. A year ago the Red Cross Society of Delaware adopted the scheme and found it a great success. According to *Charities and the Commons* (October 17), the first edition was promptly exhausted, and in eighteen days nearly 40,000 Christmas stamps were sold, profiting nearly $3,000. The stamp astonished, interested and educated the people of the state and all elements of the community loaned their aid to effect the sale with as little expense as possible. The scheme has now been taken up by the National Red Cross and the stamp here illustrated will be on sale in every state this season. The United States postal regulations interfere at present with its being sold in postoffices, as was the case in Denmark.

It can be procured in any quantity from the Red Cross headquarters in any state, or from the central one in Washington, for cash only, at one penny for each stamp. It will not carry mail, but any kind of mail will carry it. "Its educative and inspiring value in Delaware has been found to be great," says the paper above quoted. "'Good Will to Men' was the heading of the posters, all in Christmas red, that announced it. That is the spirit and the message of the Christmas stamp, and that is why the public heart has so responded to it."

Acute Lymphopenic Lymphatic Leukemia.—How little characteristic of a blood disease the blood picture itself may be is illustrated by a case reported by R. S. Lavenson (*Proceedings of the Pathological Society of Philadelphia*, June-July, 1908), for which he coins the name "lymphopenic lymphatic leukemia." The name "lymphatic leukemia" means an excess of lymphocytes in the blood; and this condition usually exists in the disease named from it. In some cases, however, the number of lymphocytes is increased not absolutely, but relatively. In the case reported by Dr. Lavenson there was an absolute diminution, with no relative increase, in the number of lymphocytes. This condition does not allow the case to be placed in any one of Türk's three classes. The autopsy showed numerous lymphocytic deposits in various parts of the body, indicating a great increase in the formation of lymphocytes, although no excess was passed into the blood. Dr. Lavenson supposes that some influence incited the various organs which form lymphocytes to a greatly increased production of lymphocytes, and that at the same time the rate of their extrusion into the blood current was diminished so that there resulted a rapid hypertrophy of the lymphatic structures, but an unusually small number of lymphocytes in the blood. The marked preponderance of ulcerative mouth lesions is regarded by Lavenson as secondary to the lymphocytosis and not as pointing to the portal of entry of the etiologic element. The latter is quite uncertain. Spirochetes, fusiform bacteria, and streptococci were found in the ulcerated areas of the mouth, but probably indicate a secondary infection. Diphtheria bacilli were found in the lung and in one of the mesenteric lymph glands, and their presence, while suggestive, can not be regarded as conclusive.

Marriages

ROBERT BRUCE BERRY, M.D., to Miss Lula D. Hamp, both of Baltimore, October 28.

CHARLES G. BROWN, M.D., to Miss Essie L. Meister, both of Mansfield, Ohio, October 7.

EDGAR DISMUKES CRAWFORD, M.D., to Miss Carol Gray, both of Atlanta, Ga., October 28.

EDWARD C. S. TALIAFERRO, M.D., to Miss Alice Serpell, both of Norfolk, Va., November 10.

JOSEPH FRANCIS HIGGINS, M.D., to Miss Mary Irene Mulvey, both of Philadelphia, October 28.

GEORGE H. DAVIS, M.D., Warrenton, Va., to Miss Norma Smith of Woodford, Va., October 24.

A. S. BLOUGH, M.D., Elizabethtown, Pa., to Mrs. Julia Woomer of Lebanon, Pa., October 28.

ROBERT E. SEVIER, M.D., Liberty, Mo., to Mrs. Lena M. Ray of Excelsior Springs, Mo., October 28.

GEORGE W. KEHL, M.D., Reading, Pa., to Miss Anna B. Charles of Lancaster, Pa., November 3.

FRANK R. SHEPPARD, M.D., Millville, N. J., to Miss Mae Colquhoun of Brooklyn, N. Y., October 29.

JAMES EDMUND HERATY, M.D., to Miss Florence Brady, both of Bloomington, Wis., November 4.

JESSE LEWIS RAINS, M.D., Grangeville, Idaho, to Miss May Wildenthaler of Lewiston, Idaho, October 21.

WILLIAM WATSON GAILEY, M.D., Bloomington, Ill., to Miss Louise Huffaker of Jacksonville, Ill., October 29.

FRANCIS RICHARD ANTHONY, M.D., Marysville, Mo., to Miss Endora Mather of Kansas City, Mo., November 4.

MARLAND HOOPER EATON, M.D., Wenham, Mass., to Miss Hattie Maude Elliott of Beverly, Mass., October 30.

JOHN SEDGWICK ANDREWS, M.D., Orange, Va., to Miss Margaret Janvier Cooper of New Castle, Del., October 28.

CHARLES HOWARD AUFHAMMER, M.D., Pittsburg, Pa., to Miss Ada B. Corey of Philadelphia, at Downington, Pa., November 2.

IRVING D. CHANEY, M.D., Calvert County, Md., to Miss Elizabeth Olyvia Talbott, at Hampton, Chaneyville, Calvert County, Md., October 28.

Deaths

Henry Denton Nicoll, M.D. College of Physicians and Surgeons, New York, 1866; a member of the American Medical Association, New York Academy of Medicine and New York Pathological Society; of New York City; surgeon to the Woman's Hospital; consulting surgeon to the Nursery and Children's Hospital; consulting obstetrician to the Lincoln Hospital; and consulting gynecologist to the Presbyterian Hospital and the Home for Incurables; president of the Law and Order Union of the State of New York; died at his home in New Windsor, October 27, aged 64.

William M. Strickler, M.D. Medical College of Virginia, Richmond, 1869; mayor of Colorado Springs in 1888, 1893 and 1894; and once president of the Colorado State Medical Society; assistant surgeon in the Confederate service during the Civil War; physician of El Paso County for several years; in 1884 and 1885 chairman of the finance committee of the city council and president of the council; died at the home of his brother in Denver, October 26, from the effects of an accidental overdose of morphin, aged 70.

Alonzo Brayton Ball, M.D. College of Physicians and Surgeons, New York City, 1863; of New York City; a member of the Medical Society of the State of New York, Association of American Physicians, and New York Academy of Medicine; consulting physician to St. Luke's, the General Memorial and New York hospitals; at one time professor of clinical medicine in Columbia University; died in Boston, October 24, from pneumonia, aged 68.

Samuel T. Davis, M.D. Long Island College Hospital, Brooklyn, 1865; a member of the Medical Society of the State of Pennsylvania; formerly president of Lancaster City, Lancaster County and Lancaster Pathological societies and of the State Board of Health; a member of the American Public Health Association; and surgeon to St. Joseph's Hospital, Lancaster; died October 23, near Colonia-Pachico, Mexico, while on a shooting expedition, from heart disease, aged 71.

Shirley Bragg, M.D. Medical College of Alabama, Mobile, 1875; a member of the Medical Association of the State of Alabama; state jail, almshouse and cotton mill inspector, and president of the state board of convict inspectors; a well-known sanitary expert; was found dead in his room in Montgomery, October 29, from a gunshot wound supposed to have been self-inflicted, with suicidal intent, aged 54.

John H. Purnell, M.D. Memphis (Tenn.) Hospital Medical College, 1882; of Vicksburg, Miss.; assistant to the president of the Memphis board of health in 1878 and 1879; state health officer of Mississippi, and later in the Marine-Hospital Service in Mexico and Panama, where he served as health officer of the city of Panama for several years; died in Shreveport, La., October 26, from chronic nephritis, aged 49.

Waldemar Frederic Bille, M.D. University of Copenhagen, Denmark, 1859; surgeon in the Danish navy from 1859-1862; sent by his government as a naval observer during the Civil War, and on duty on the U. S. S. *Hartford* at the taking of New Orleans; surgeon of chasseurs d'Afrique, during the Franco-German war; died at his home in New Orleans, October 27, aged 73.

John Franklin Burns, M.D. Cooper Medical College, San Francisco, 1883; a member of the Medical Society of the State of California; formerly president of the Fresno and Santa Clara county medical societies, and president of the board of trustees of Selma, Cal.; health officer of San José; died at his home in San José, October 26, from nephritis, aged 50.

J. LaRoche Wilson, M.D. Medical College of the State of South Carolina, Charleston, 1898; a member of the American Medical Association; a member of the board of commissioners of the city hospital of Charleston, S. C.; a member of the city council; and a trustee of the high school; died at the home of his father in Meggett's, S. C., October 27, aged 34.

Marx Block, M.D. Chicago Medical College, 1865; assistant surgeon of the Fourteenth U. S. Infantry during the Civil War; for a number of years a member of the school board and president of the board of education; died at his home in Chattanooga, October 17, from enlargement of the spleen, aged 76.

Francis Fullam Parker, M.D. Harvard Medical School, Boston, 1869; a member of the Massachusetts Medical Society; for one year city physician and for three years school committeeman of Chicopee, Mass.; died at his home in that city, October 29, from cancer of the liver, aged 67.

Joseph Thomas Callahan, M.D. Harvard Medical School, 1899; formerly in the Public Health and Marine-Hospital Service; in 1903 city physician of Woburn, Mass.; a lecturer in Harvard Medical School; died in the Massachusetts General Hospital, Boston, October 29, from nephritis, aged 35.

Thomas Gregory Walsh, M.D. Rush Medical College, Chicago, 1887; a member of the medical staff of the Emergency and St. Mary's hospitals, Milwaukee; attending physician to St. Vincent's Infant Asylum; died at his home, October 25, from nephritis, aged 47.

Jacob D. Haynie, M.D. Cincinnati College of Medicine and Surgery, 1878; chief of the medical staff of the Richmond division of the Pennsylvania system; died at his home in Richmond, Ind., October 29, from the effects of a fall down a stairway, aged 56.

Harrison W. Dorsett, M.D. Jefferson Medical College, Pa.; for more than forty years a practitioner of Bethany, N. C.; a member of the Medical Society of the State of North Carolina; died at his home in Bethany, October 21, from pneumonia, aged 68.

Henry Augustus Weymouth, M.D. Vermont Medical College, Woodstock, 1843; a member of the American Medical Association; for sixty-five years a practitioner of Andover, N. H.; died at his home in that place, October 22, from bronchitis, aged 88.

William Field Wood, M.D. Queen's University, Kingston, Ont., 1891; a member of the American Medical Association; formerly president of the Mishawaka (Ind.) Physicians' Club; died at his home in Mishawaka, October 20, from tuberculosis, aged 41.

William J. Murphy, M.D. University of California, San Francisco, 1901; surgeon of the Pacific Mail Steamship Com-

pany's steamer, *San Juan;* committed suicide, while despondent, by cutting his throat, on a voyage to Central America, April 11.

Melvin E. Kepner, M.D. Missouri Medical College, St. Louis, 1899; a member of the American Medical Association; and vice-president of the Effingham County (Ill.) Medical Society; died at his home in La Clede, November 2, from septicemia, following erysipelas, aged 37.

Ralph C. James, M.D. University of Minnesota, Minneapolis, 1905; a member of the Minnesota State Medical Association; house physician of Rood Hospital, Hibbing, Minn.; died in that institution, October 29, from ptomain poisoning, aged 27.

David Donald Duggan, M.D. Trinity Medical College, Toronto, 1895; for sometime assistant surgeon of the Children's Hospital, Toronto; died at his home in Battle Creek, Mich., November 2, from paralysis, aged 39.

James Thornton Matson, M.D. Missouri Medical College, 1849; one of the three surviving members of the Missouri Constitutional Convention; died at his home near Louisiana, Mo., October 21, from senile debility, aged 87.

William C. Buckley, M.D. Penn Medical University, Philadelphia, 1861; surgeon of the Thirteenth Pennsylvania Reserves during the Civil War; died at his home in Philadelphia, October 25, from arteriosclerosis, aged 74.

George Ward England, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1877; a member of the American Medical Association; died at his home in Valley Falls, Kan., October 28, from carcinoma of the liver.

George S. Darling, M.D. University of Michigan, Ann Arbor; of Tawas City, Mich., 1875; probably the oldest practitioner of Iosco County; died in a hospital in Detroit, October 27, from cancer of the throat.

William Grebe, M.D. University of Pennsylvania, Philadelphia, 1889; a member of the State Medical Association of Texas; died at his home in West Point, October 26, from tuberculosis of the throat, aged 44.

Benjamin Jackson Dismukes, M.D. University of Georgia, Augusta, 1857; surgeon in the Confederate service during the Civil War; died at his home in Union Springs, Ala., September 16, from pneumonia, aged 75.

Richard Lauren McClung, M.D. Tulane University, New Orleans, 1870; a Confederate veteran; secretary of the Cass County, Texas, Medical Society; died suddenly at his home in Atlanta, October 12, aged 68.

Howard Eugene Wilson, M.D. College of Physicians and Surgeons, New York, 1876; of Chester, Mass.; died in a private hospital in Cambridge, September 16, after an operation for intestinal obstruction, aged 55.

Thadeus Patton Bell, M.D. Georgia, 186—; a veteran of the Civil War; formerly of Blue Springs, Mo.; died in the National Military Home, Leavenworth, Kan., October 6, from cerebral hemorrhage, aged 73.

Harry Plympton, M.D. Long Island College Hospital, Brooklyn, 1880; formerly a member of the staff of Kings County Insane Hospital, Brooklyn; died at his home in that city, October 29, aged 51.

Josephine Grant Bell, M.D. Cooper Medical College, San Francisco, 1898; of Bartlett Springs, Cal.; died near that place, October 9, from an accidental gunshot wound of the abdomen, aged 40.

Wellington Williams, M.D. McGill University, Montreal, 1901; surgeon for a railway construction party at Denorwick, Western Ontario; died at that place from typhoid fever, October 24, aged 40.

William Edwin Brown, M.D. University of Louisville, 1861; of Owensboro, Ky.; died at the home of his brother in Philpot, Ky., September 30, from fatty degeneration of the heart, aged 72.

John B. Kohler, M.D. University of Pennsylvania, Philadelphia, 1873; a member of the Medical Society of the State of Pennsylvania; died at his home in New Holland, October 30, aged 57.

Frank L. Lewis, M.D. Rush Medical College, Chicago, 1870; formerly of Green Bay, Wis., and Beatrice, Neb.; died at his home in Fayetteville, Ark., from nephritis, October 30, aged 67.

Benjamin Sylvester Smoot, M.D. University of Nashville, 1857; a Confederate veteran; died at the home of his son, in Anniston, Ala., February 12, from senile debility, aged 74.

James Osgood Adams, M.D. Howard University, Washington, 1885; a member of the Medical Association of the District of Columbia; died at his home in Washington, October 29.

Benjamin F. Rea, M.D. Jefferson Medical College, Philadelphia, 1842; a member of the Medical Society of the State of Alabama; died at his home in Lafayette, July 23, aged 90.

John D. Timmerman, M.D. Eclectic Medical Institute, Cincinnati, 1870; of Leipsic, Ohio; a veteran of the Civil War; died at the home of his daughter in Columbus Grove, Ohio, November 4, aged 69.

Samuel Croft, M.D. University of Pennsylvania, 1863; a clergyman and practitioner of Chambersburg, Pa., died at his home March 12, from paralysis, aged 76.

Charles Wesley Seely, M.D. Eclectic Medical Institute, Cincinnati, 1903; died at his home in Wileyville, W. Va., from an overdose of chloroform, October 29, aged 39.

Charles Van Pelt, M.D. Medical College of Ohio, Cincinnati, 185—; died at his home in Lamar, Mo., October 9, from obstruction of the common duct, aged 80.

Almer L. Sabin, M.D. College of Physicians and Surgeons, Chicago, 1891; of Parkville, Mo.; died November 1, at the Kansas City General Hospital, aged 37.

Joseph Wilson, M.D. Western Reserve University, Cleveland, 1862; died at his home in Youngstown, Ohio, October 27, from cerebral hemorrhage, aged 72.

Thomas Landrum Ballenger, M.D. Atlanta (Ga.) College of Physicians and Surgeons, 1891; died at his home in Subligna, Ga., October 1, from fever, aged 50.

Charles William Harwood, M.D. Detroit Medical College; died at his home in Sandwich, Ont., April 6, from pneumonia following typhoid fever, aged 63.

John H. Timken, M.D. Hahnemann Medical College, Chicago, 1877; died at his home in Peoria, from cerebral hemorrhage, November 1, aged 54.

Joel Perry Carlisle, M.D. Tulane University, New Orleans, 1871; a Confederate veteran; died at his home in Cold Springs, Texas, October 25, aged 73.

John Henry C. F. Fisher, M.D. Trinity Medical College, Toronto, 1888; died at his home in Toronto, February 13, from pneumonia, aged 58.

Joseph Anson Bates, M.D. New York University, 1863; died at his home in Baltimore, October 23, from heart disease, aged 70.

Nathaniel M. Johnson, M.D. Memphis (Tenn.) Medical College, 1855; died at his home in Henning, Tenn., October 29.

James A. McNaughton, M.D. Toronto University, 1893; of Los Angeles, Cal.; died in Pasadena, September 12, aged 39.

Robert F. Park, M.D. Louisville Medical College, 1889; died at his home in Waco, Texas, October 21, aged 43.

Society Proceedings

COMING MEETINGS.

American Assn. of Anatomists, Baltimore, Dec. 29-31.
Southern Surgical and Gynec. Assn., St. Louis, Dec. 15-17.
Western Surgical and Gynec. Assn., Minneapolis, Dec. 29-30.

MEDICAL SOCIETY OF VIRGINIA.

Thirty-ninth Annual Meeting, held in Richmond, Oct. 20-23, 1908.

(*Continued from page 1625.*)

Bladder Wounds in Hernia Operations.

DR. W. B. DE GARMO, New York: Accidental wounds of the bladder are increasing in number, due to the greater frequency of operations for radical cure, and are attended by a mortality of 12 per cent. The bladder and femoral and inguinal canals are intimately related, and special attention must be directed to the fact that the most frequent bladder protrusion occurs at the external ring and has no peritoneal covering. Diagnosis before operation is rarely made, but any bladder symptoms, especially if associated with large, indirect inguinal hernia, should place the operator on his guard. The surgeon who is always able to recognize a diverticulum of the bladder when met on the operating table is fortunate. He should look with suspicion on those protrusions that come out immediately above the pubic bone and well toward the median line, especially if they are covered with a light yellow fat containing blood vessels of large size. Normal bladder wall will

seldom be seen, the sacculus most frequently having a thin, membranous appearance. A sound passed per urethram will usually decide; but I favor opening instead, the peritoneal cavity at the internal ring and examining the sac from within the abdomen, as saving time and affording greater certainty of diagnosis. If bladder is recognized, I dispose of it either by carrying it well toward the median line, stitching the prevesical fat to the conjoined tendon, or, preferably, by putting a purse-string suture around the neck of the tumor, inverting it by pushing it into the bladder with the finger, and then tying the suture. It is believed that wounds accidentally made in the bladder wall are best closed by using plain catgut of small size in the submucous coat, avoiding perforation, and closing the muscular coat with silk. Retention of the catheter for 24 or 48 hours, and then catheterization every two hours.

DR. G. B. JOHNSON, Richmond: The occasional operator does a text-book operation, and in an ordinary, recent case, succeeds; but in an old one the structures have so changed that he is at a loss, and much more so if the bladder presents. I don't know any complication that occasions a few moments' greater anxiety than this. If the occasional operator recognizes it he doesn't know what to do with it, and is apt to injure it.

DR. J. W. BOVÉE, Washington, D. C.: I agree with Dr. De Garmo in retaining the catheter for the first 48 hours; but for the next three days I use it every four hours, and then see to it that that patient voids every six hours. Kangaroo tendon and catgut are the safest suture materials, for no permanent material should be used in the bladder.

The Rational Treatment of Indigestion.

DR. DOUGLAS VANDER HOOF, Richmond: Indigestion, in most forms, is one of the most easily cured of all conditions affecting mankind. It is not generally so regarded because the common mistake is made of treating the stomach and not the patient. The first thing to consider is that we are called on to treat a symptom and not a disease; to be successful, however, we must not treat the symptom as such, but eradicate the underlying cause. Few real affections of the stomach exist. Excluding rare conditions and the gastric symptoms of various toxemias, there remain only ulcer, cancer and the functional disorders. The last are either reflex in nature or associated with a general or localized neurosis. Most important causes of reflex indigestion are cholelithiasis, chronic appendicitis, errors of refraction associated with eye-strain, and, in women, pelvic disease. It is the worry produced by the indigestion that increases the indigestion; and the physician, by explaining to the patient the real nature of the affection, can remove this second cause of worry and so break up the vicious circle. Eructation of gas is rarely due to fermentation. The stomach, because of its loss of tone, is really distended with atmospheric air and the condition is a modified form of aerophagia. Palpitation of the heart is not due to pressure of the distended stomach, but to the same loss of nerve (vagus) tone that causes relaxation of the stomach walls.

Patients with gastric neurosis must be told that they have no organic trouble, and that their indigestion is absolutely curable. The cause of their symptoms must be explained to them, and they should be made to realize that it is not what one eats that gives him indigestion, but the state of his stomach-nerves at the time the meal is taken. The diet should not be restricted but, rather, forced. Drugs occupy a minor place in the treatment of functional gastric disorders, and gastric lavage is rarely indicated. Most remedies that are given for indigestion have one virtue, in that they are, for the most part, harmless, and this well applies to the ferments. Simple bitters are probably of service, and whatever medication is administered should be directed toward improving the general nervous tone.

DISCUSSION.

DR. J. S. DAVIS, Charlottesville: It is as important to rest before as after meals. In some cases of slight enteroptosis a binder is of much effect in taking the mind off the case.

DR. C. M. HAZEN, Richmond: There is no objection to making a careful stomach diagnosis and then a careful nerve diagnosis; but even after these the condition must be attributed to the cord or other organs. The stomach has its own nerve supply, and like the intestines, and with them, can almost manage itself without factors; but, in addition, there is another supply, and in disease the question arises which set is involved. Fortunately, a treatment of neurasthenia will also benefit other conditions, whether motor, secretory, vaso-motor, or what not. As to gastroptosis, which is due to loss of tone of the spinal cord, what is the use of employing a crutch when other means are at hand for direct treatment?

Necessity for Diagnosis as a Preliminary Step to Gynecologic Operations.

DR. CHARLES R. ROBINS, Richmond: Gynecologic science suffers from the ease with which many of its procedures may be carried out, thus leading many who have not equipped themselves to properly diagnose their cases to attempt operations. Even the slightest operation should be preceded by a complete examination and thorough diagnosis, as, otherwise, symptoms may be mistaken for disease with embarrassing and perhaps fatal results. Accurate gynecologic diagnosis is the exception and not the rule, due to a variety of causes—lack of sufficient opportunity to acquire dexterity; the natural difficulty of the subject, owing to the fact that differentiation has to be made between pelvic conditions and others which simulate them very closely; and also because women are so much influenced by their nervous and emotional organism as to frequently make their symptoms misleading. Some years of study of women from the view point of the general practitioner are essential to a proper appreciation and estimation of the nature of their maladies. The most difficult cases are those in which pelvic lesions exist, but symptoms are due to other causes.

A specialty hinges on diagnosis, and a plea is made that more men should regard this as a specialty and equip themselves for accurate diagnosis, thus avoiding operative errors.

DISCUSSION.

DR. J. W. BOVÉE, Washington: General surgeons have largely taken up gynecology as a part of the practice of general surgery. When a diagnosis has been made it is well to find the etiologic factors and treat them. The cases are by no means rrre in which curettage has been done under the mistaken diagnosis of incomplete abortion, the condition later being found to be ectopic gestation with rupture, the patient objecting to removal.

Some Obstetric Experiences.

DR. W. E. ANDERSON, Farmville: I wish merely to report the following cases because of their comparative rarity: Hydatiform moles, an eighth month child born with pustules of smallpox. Shoulder presentation, evisceration being followed by version and delivery, mother dying two years later in a similar birth. Congenital hydrocephalus, the mother having previously given birth to a child with spina bifida, had two postpartum hemorrhages and one breach presentation. The use of forceps in normal labors is becoming too fashionable and should be condemned. Much of the trouble of labor could be avoided by proper attention given beforehand.

DISCUSSION.

DR. J. F. WINN, Richmond: While all cases of toxemia of pregnancy are not preventable, a large number of them is. I impress on the woman the importance of bringing to me a certain quantity of urine on a certain day, just as soon as she is certain that she is pregnant. As soon as I am engaged for a case I give the patient printed directions as to hygiene, diet, bowels, care of the nipples, etc.; and on the back of the paper are named certain symptoms the existence of which is to be reported to me as soon as observed.

DR. GEORGE ROSS, Richmond: I do not think it wise to have a woman concentrate her attention to such an extent as advised by Dr. Winn, though, in general, I agree with him. Meddlesome midwifery is to be condemned. For the past twenty years I have used chloroform in every one of my cases of labor.

DR. G. T. HARRISON, New York: No man is a competent, modern obstetrician unless he is a surgeon. It is most im-

portant to know when to use forceps and when not to use them. They should not be used when the head is fixed in the pelvis as in postoccipital cases, nor when the head is high. It is a mistake to use high forceps. When version is indicated forceps are contraindicated, and when the time for version is past it is too late for forceps.

DR. W. F. CREASCY, Newport News: I delivered with high forceps a woman with puerperal convulsions and in the pustular stage of smallpox. The child had the pustular eruption, and both it and the mother are living.

Potassium Bicarbonate and Hyoscin Hydrobromid in Influenza.

DR. STEPHEN HARNSBERGER, Catlett: The patient is to be put to bed and kept there through convalescence or longer. Give calomel to full cleaning out of the gastrointestinal tract. Then the way is open to the best action of potassium bicarbonate. Thirty to sixty grains are to be given in dilute solution every four hours, each dose being followed by from one-half to a glass of water. Require absolute abstinence from food for forty-eight hours. For the intense pain in the temples, forehead, eyeballs, etc., give hyoscin hydrobromid or morphin and atropin hypodermically.

Potassium bicarbonate prevents complications, and as the fatalities of influenza are due to these, mortality is lessened. This fact is borne out in its use in every epidemic of influenza since 1889. I have never had pneumonia succeed the disease when directions were followed. Potassium bicarbonate not only aborts but will establish resistance in persons subject to colds. Fresh air, baths, mouth, nose and ear hygiene should have concomitant consideration.

(*To be continued.*)

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-fourth Annual Meeting, held at Louisville, Ky., Oct. 13-15, 1908.

(*Continued from page 1634.*)

SYMPOSIUM ON DISEASES OF THE PANCREAS.

Etiology and Pathogenesis of Pancreatitis.

DR. WILLIAM D. HAGGARD, Nashville, Tenn.: Gallstones are etiologically associated with pancreatitis in nearly one-half of the cases. Anatomic peculiarities and variations of the terminal pancreatic ducts are the determining factors in the occurrence of pancreatitis in some cases of gallstones and not in others. Lodgment of a stone in the ampulla of Vater temporarily or permanently (Opie) causes acute hemorrhagic pancreatitis. The chronic indurative or interstitial type is caused by stones lodged, resident, or escaping through the common duct. Bacterial invasion is secondary to some unphysiologic or mechanical internal injury. Infection of the pancreas by the lymphatics in cholecystitis is probably a more frequent avenue than by continuity. Gastroduodenitis appears to be responsible for about one-third of the cases. Catarrhal jaundice is probably caused by inflammatory swelling of the head of the pancreas, compressing the common duct of the liver, in many instances. Mumps causes about 10 per cent. of the cases of pancreatitis, and other infections may likewise cause it by metastases. Fat necrosis with acute hemorrhagic pancreatitis is caused by injury of the gland cells, access of bile or enterokinase which activates the hemolytic property of pancreatic juice.

Diagnosis of Pancreatitis.

DR. A. J. OCHSNER, Chicago: There is an area of tenderness on deep pressure over the upper portion of the right rectus abdominis muscle to the right of Robson's point in pancreatitis complicating cholecystitis. This area is not so circumscribed as Robson's point and corresponds nearly with the area of tenderness in duodenal ulcer. There should be continued, careful examination of the pancreas in all surgery of the upper portion of the abdominal cavity in order to obtain reliable statistics.

DR. J. HENRY SCHROEDER, Cincinnati, Ohio, discussed the physiology and chemical pathology of the pancreas in pancreatitis.

Pancreatic Diabetes and Its Relation to Gallstones.

DR. ALFRED C. CROFTAN, Chicago: The interrelationship existing between gallstone disease and pancreatic diabetes is important clinically, for three reasons: First, cases of persistent, usually very intractable, glycosuria occur that run their course under the guise of an idiopathic diabetes mellitus, but are in reality due to gallstone factors; second, cases occur which present all the essential clinical features of cholelithiasis, accompanied by continuous or intermittent glycosuria, are in reality cases of chronic pancreatitis and not of gallstone disease; third, because the two disorders occur together much more often than is generally assumed and produce a complicated disease-picture that is confusing and commonly misinterpreted. The identification of a glycosuria as due to pancreatic diabetes is uncertain, because it implies the hazardous diagnosis of pancreatitis, which is especially difficult when gallstone disease complicates glycosuria. Pancreatic diabetes (glycosuria) is a much more common symptom in acute pancreatitis, and at the onset of pancreatic disease, especially when associated with cholelithiasis, than in later stages. In individuals with a diabetic heredity glycosuria is apt to occur in even slight pancreatic involvement, and occasionally administration of a diabetic test meal demonstrates reduced tolerance for carbohydrates.

In interpreting the occurrence together of pancreatic diabetes and gallstones, three possibilities are to be considered: (1) The gallstones may precede the pancreatitis; (2) the disorder about the pancreas may be the cause of the gallstone formation; (3) both the gallstones and the pancreatic diabetes may be due to some common cause acting simultaneously on the liver and the pancreas.

The medical treatment of pancreatic diabetes, especially when complicated with cholelithiasis, is unsatisfactory. Exploratory laparotomy in any suspicious case is almost invariably indicated.

Surgical Treatment of Pancreatitis.

DR. W. J. MAYO, Rochester, Minn.: Immediate operation offers the best prospect of cure in acute hemorrhagic pancreatitis. While the mortality is exceedingly high, it is not prohibitive. If operated on early, a swollen pancreas will be found which should be incised in several situations, and free drainage furnished. Fat necrosis is not necessarily a fatal condition. I have operated on a number of such patients in the convalescent stage. Localized septic accumulations in the pancreas should be opened and drained. Gallstones should be removed and biliary drainage furnished. The surgical treatment of subacute pancreatitis presents a more favorable field. The fundamental principle of surgical treatment of chronic pancreatitis consists in relieving the common duct of as much of its bile-carrying function as possible. In 62 per cent. of cases jaundice will be present because the common duct runs through the head of the pancreas. In 38 per cent. the common duct lies behind the pancreas, but will usually be found more or less dilated, often without jaundice, in all cases of chronic pancreatitis. In the majority of cases gallstones in the gall bladder or bile ducts are the direct cause of the chronic pancreatitis. With gallstones in the common duct, 84 per cent. of patients will have a contracted gall bladder, the result of gallstone irritation. When the chronic pancreatitis is not the result of calculi, the gall bladder will usually be distended. Chronic pancreatitis when caused by gallstones will usually be cured by removal of the stone, and temporary bile drainage. When not caused by stones, cholecystenterostomy is indicated. The gall bladder has two important functions: First, the secretion of mucus, which renders the bile less irritating; second, the relief of tension in the common duct. Both tend to prevent pancreatic complications.

Discussion on Pancreatic Diseases.

DR. G. W. MCCASKEY, Fort Wayne, Ind.: To American medicine is due the credit for the most important fundamental advances that have been made in connection with this subject. The relation of gallstone disease to pancreatitis has been clearly demonstrated, and we should remember that it is not necessary for a gallstone to reach the ampulla of

Vater and block up its duodenal orifice in order to produce this disease. Anatomic studies have shown that in fully 62 per cent. of cases of all individuals the common duct was more or less firmly embraced by the pancreas. It is obvious that a calculus in passing through the common duct in its intrapancreatic portion may press on the pancreatic duct, thus producing stasis of pancreatic secretion and leading secondarily to chronic pancreatitis.

DR. W. H. WATHEN, Louisville: It is a question whether pancreatitis is always the result of an infection ascending from the duodenum or through the blood, or whether it comes down secondarily from the gall bladder. The treatment, however, is practically the same, and that is drainage, the best method of which in the chronic forms of the disease is through the biliary ducts, either by cholecystostomy, which will cure many of these cases, whether there be gallstones or not, or by cholecystenterostomy, when complications do not contraindicate that procedure, preferably with duodenum, next with the jejunum, as high up as is consistent with good surgery, and finally unfortunately it has been made with the colon, where we lose all the digestive properties of the secretion. I should advocate in these cases operative procedure, drainage by cholecystostomy, or drainage by cholecystenterostomy into the duodenum or jejunum.

DR. G. DOCK, New Orleans, La.: It was pointed out some years ago, and has been noticed by many observers since then, that certain cases of acute inflammation of the adrenals produced the same symptoms as acute pancreatitis, or as those which occur in acute irritation of the peritoneum. Lavenson has reported an interesting case in which a patient had chronic pancreatitis and acute hemorrhagic degeneration of the adrenals.

DR. D. N. EISENDRATH, Chicago: I wish to emphasize the frequency with which we have apparently primary pancreatitis. These cases are secondary to infections from the intestine, but are primary, so far as any gallstones are concerned, in the pancreas. We have been accustomed in the past to think of cases of persistent and intense jaundice as being due to malignant disease at the head of the pancreas or to stones in the common duct, or some similar condition obstructing the common duct. We have come to recognize that there is a so-called primary icterus which is due to inflammation of the pancreas, resulting in such proliferation of connective tissue around the orifice, or close to the orifice of the common duct into the duodenum, that there is persistent jaundice, and this jaundice will not be relieved by cholecystostomy. These are the cases in which a cholecystenterostomy or a cholecystjejunostomy is the only operation which will give relief, provided it is possible.

DR. N. ROSEWATER, Cleveland: I had a case of chronic interstitial pancreatitis that came to autopsy several years ago. In this case we found a dozen gallstones. The patient was a woman of 63; she had never had icterus; she had no pain. There were no symptoms which would lead one to make a diagnosis of either gallstones or involvement of the pancreas. Only one of numerous consultants suggested malignant disease of the pancreas. I observed the patient for a considerable time. Suddenly she was taken with complete deafness. I attributed this to gastrointestinal disturbance. I gave her a cathartic, but within a few hours she also developed a peculiar condition of the tongue. She could hardly utter a word, though there was not complete paralysis. She could stick the tongue out, but it would not go to either side. Consultants in the case were divided as to whether there was apoplexy or not. But this condition cleared up. No stomach pump was used on account of the fact that we were dealing with possible apoplexy. The woman vomited; the contents of the stomach were examined and found to contain no gastric juice, so that we were dealing with an achylia. At autopsy we found a number of gallstones, chronic interstitial pancreatitis, and general arteriosclerosis.

DR. J. H. CARSTENS, Detroit: Gallstones are not so frequent as ordinarily supposed. For the last few years I have examined every single patient on whom I have done laparotomy for gallstones, and of 500 operations I have found only 2 in which gallstones existed.

(*To be continued.*)

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Held at Washington, D. C., Sept. 28 to Oct. 3, 1908.

(*Continued from page 1629.*)

SECTION V.—HYGIENIC, SOCIAL, INDUSTRIAL AND ECONOMIC ASPECTS OF TUBERCULOSIS.

President, Mr. Edward T. Devine, New York; secretaries, Mr. Alexander M. Wilson, Chicago, and Miss Lillian Brandt, New York.

Cost of Tuberculosis in the United States and Its Reduction.

PROFESSOR IRVING FISHER, New Haven, Conn.: The death rate from tuberculosis in all its forms in the United States is estimated at 164 per 100,000 of population, and the number of deaths in 1906 at 138,000. At this rate, of those now living in the United States, 5,000,000 people will die of tuberculosis. The average age at death for males is 37.6 years; for females, 33.4 years. The "expectation of life" lost (though estimated on a specially high mortality rate) is at least 24 years, of which at least 17 fall in the working period. The average period of disability preceding death from tuberculosis exceeds three years, of which the latter half is a period of total disability. The money cost of tuberculosis, including capitalized earning power lost by death, exceeds $8,000 per death. The total cost in the United States exceeds $1,100,000,000 per annum. Of this cost about two-fifths, or over $440,000,000 per annum, falls on others than the consumptive. An effort to reduce the mortality by one-fourth would be worth, if necessary, an investment of $5,500,000,000. The cost of treating patients at sanatoria is repaid many times over in lengthened working lives. The erection of isolation hospitals for incurables is probably the most profitable method at present of reducing the cost of tuberculosis.

Relation Between Tuberculosis and Mental Defect.

DR. MARTIN W. BARR, Elwyn, Pa.: The assertion that tuberculosis is a potent factor in the production of mental degeneracy, as well as of physical, finds confirmation in a comparison of two etiologic tables compiled from the studies of over 6,000 cases made, the one in England and the other in America; the former placing it second, the latter third, in an enumeration of causes. The opinion, thus reached, is further verified in the statistics of various asylums where family history reveals tuberculosis trouble as cause, either singly or associated with other fateful heredities. Similarly, death statistics gathered in America, in the British Isles, and on the Continent of Europe, show a ratio varying according to location and association from 15 to 75 per cent. The prudential motives governing the isolation of tuberculosis in institutions, and the equal necessity for the sequestration and perpetual safeguarding of imbeciles of whatever grade, should be emphasized in this connection; as, incapable of judgment in the matter of self-care, and ignorant or regardless of consequences, these unfortunates can not but prove a double menace to society as active agents, however involuntary, in the dissemination or procreation of tuberculosis. That the tendency of both these forms of degeneration is to deorganize and to lower the entire tone of the whose system so as to minimize resisting power is patent to the most casual observer. Naturally, any close association of such conditions must insure to its victim a certainty of one evil or the other or, as is frequently the case, a mingling of the two; thus the tuberculous patient may lapse into idiocy or the imbecile meet death from tuberculous trouble.

Legitimate Exercise of Police Power for the Protection of Health.

DR. HENRY B. FAVILL, Chicago: Measures of regulation of industrial affairs in behalf of the laborers inevitably carry with them much of the controversy between capital and labor and are difficult to institute. It is becoming generally accepted that health is the essential factor in productiveness and prosperity, and hence in the advancement of civilization. It follows, therefore, that the state in pursuit of its primary function must take cognizance of fundamental necessities. The

conditions under which labor shall be performed as related to health become matters of primary interest to the state, and on that basis should be the subjects of decisive, mandatory legislation. Inasmuch as all legislation is subject to judicial review as to what is constitutional, regard should be paid to the trend of judicial opinion. Thus far, three things appear as important: (a) That the subject should be clearly a health proposition; (b) that it be general and not class legislation; (c) that the contention be supported by reliable data. Tuberculosis is the most imperative subject before us. Data on this subject are meager and must be acquired through systematic research. To accomplish this much "police" cooperation will be necessary. Broadly speaking, the re-education of the masses as to the value of fresh air and the practicability of being subjected to it, is a colossal undertaking, but of fundamental importance. The importance of fresh air as a physiologic stimulus, leading to individual vigor, must be emphasized. Its value as an atmospheric purifier is important though decidedly secondary. The readjustment of industrial conditions to an adequate supply and distribution of fresh air is the one great thing to accomplish. The difficulties are so great as to be appalling. The necessities are so clear as to be imperative. Sanitarians and sociologists must combine to accomplish this reform. As it now appears, nothing short of the broadest exercise of police jurisdiction will be effective. Subordinate health law naturally follows.

Relation of Tuberculosis to Crime and the Incarcerated Criminal.

DR. JULIUS B. RANSOM, New York: The significance of tuberculosis as a factor in crime is not fully determined, though the large percentage of tuberculous individuals in prisons, and the fact that most of these cases come from the infected areas of population, would indicate tuberculosis to be more or less closely allied to crime. The tuberculous prisoner represents one of the greatest physical menaces to the general social order. A realization of this fact and special work in this direction are essential to the well-being of the community at large. The necessity for a law making mandatory the examination of every prisoner admitted to every penal institution is absolute. The history of the tuberculosis work at Clinton Prison illustrates the advantageous results obtainable from the special treatment of the tuberculous incarcerated criminal; statistics covering the past fifteen years show a decrease of 71 per cent. in the tuberculous death rate in the prisons of New York. Many advantages may be derived in the way of research from study of tuberculosis in prisons. The tuberculous penal population offers a most satisfactory opportunity for prolonged experiment and study, and possesses advantages not to be found in any other field.

Pulmonary Tuberculosis Among Printers.

DR. JAMES ALEXANDER MILLER, New York, presented a report based on thorough physical examinations made on 203 printers, members of Typographical Union No. 6, who volunteered for the examination:

The main point in the investigation was not only to determine the extent of pulmonary tuberculosis, but all other diseases were considered both in the history and the physical examination. It was found that almost all the men were young, native-born Americans, earning good wages, and living under good conditions; the majority of them used alcohol and tobacco; 20 per cent. of all used them in excess, and about 20 per cent. were total abstainers. One hundred and twenty-four complained of unfavorable conditions in the shop designated as follows: Poor ventilation, 49; metal fumes from unpiped machines, 27; insanitary water closets, 19; insufficient number or absence of cuspidors, 14; dirty walls and ceilings, 8; metal dust, 5; over-crowded rooms, 7; poor light, 5. The medical history and examination showed that catarrh of the upper air passages was frequent, also dry pleurisy, bronchitis and pulmonary tuberculosis. Pulmonary tuberculosis was present in 34 cases or 17 per cent. of the whole number. My conclusions are that pulmonary tuberculosis is prevalent among printers and is largely due: 1. To unfavorable shop conditions, especially poor ventilation, overcrowding, dust and dirt, promiscuous spitting and poor lighting; 2. to the irregular habits of the printers, especially alcoholism, careless habits of eating, needless exposure to drafts and insufficient outdoor exercise.

(To be continued.)

MEDICAL ASSOCIATION OF THE SOUTHWEST

Third Annual Meeting, held at Kansas City, Mo., Oct. 19-21, 1908.

(Continued from page 1633.)

Insanity as the World Sees It.

DR. C. C. GODDARD, Leavenworth, Kan.: There is probably no disease or disturbance of the human economy so little understood by the social and business world as mental disease. To the average man a person is not considered unsound mentally unless he is overwhelmed by some superacute mania or is in a markedly depressed condition of melancholia. The popular idea of an insane individual is that of a person devoid of all sense and appreciation of environment. Many think that the afflicted must even howl, froth at the mouth, and seek to commit homicide; tear their clothing; destroy all articles that are breakable, and fail to recognize relatives and friends, before the world at large will admit, with a sigh, that the poor wretch is insane. People do not seem able to comprehend that a person may be sane in some particulars and insane in others; in fact, that a man may carry on a learned discussion on various topics and be lucid and far-seeing in his deductions, and yet when about to take his departure refuse to shake hands, with the remark: "I can not shake hands with you, for, as you are aware, I am a brass tea-kettle." A man can hardly have such a delusion and still be considered sane. So long as the daily affairs do not intrench on their peculiar hobbies or obsessions, such people may pass muster in any crowd as being perfectly sane, but let such an infringement occur, and then all their acts and talk will show the mental warp. A great deal of the peculiar ideas among the laity is due to the stories by which they are frightened when in childhood, or by ill-advised books that portray the insane character in the atrocious acts of a madman. This misconception, at times, is a stubborn thing to combat, and much injustice to families and friends is imposed because those having these erroneous ideas rapidly imbue others, even juries and judges, with the belief that an injustice is contemplated by those directly concerned, especially should property of any magnitude be involved. It is time that the teacher was abroad in the land, and that overdrawn works of fiction were censured somewhat. The public should realize, if possible, that a man does not have to become idealess, senseless, and a mere automaton to be insane, and therefore a fit subject for restraint and protection both physically and financially.

Normal Salt Solution in Septic Conditions of the Peritoneum.

DR. J. M. TAYLOR, Fort Smith, Ark., referred to the antiseptic property of normal salt solution in curing meats, and said that it has likewise a specific antiseptic effect on the peritoneum. He pointed out the efficacy of flushing the peritoneal cavity as shown by reports of cases.

DISCUSSION.

DR. GEORGE M. GRAY, Kansas City, Kan.: I do not think we can expect much in the way of antiseptic power from the normal salt solution; 0.75 per cent. salt solution will not give a very active antiseptic. Patients with general peritonitis generally suffer from more or less shock, and manipulation of the intestines, flushing and wiping add to the shock, which may prove fatal. Owing to the bad results obtained by this method of treatment, a few years ago, Dr. Ochsner, of Chicago, advised that no operation be done in these cases, saying that he had obtained better results if he depended on putting his patients in the Fowler position, or on the right side, and waiting until Nature walled off an abscess which could be opened later. Murphy, of Chicago, has undoubtedly obtained the best results of any operator with his method of rapidly opening the abdomen, draining, using no flushing whatever, no wiping of the intestines, removing the appendix in cases where it was at fault, closing any perforation of the intestine, and finally closing the wound without flushing and depending

simply on drainage with position, and salt enemas, using a continuous flow of normal salt solution into the bowels.

DR. WALTER B. DORSETT, St. Louis: I am sorry that Dr. Taylor spoke disparagingly about drainage, because I have suffered the consequences of having closed some abdomens when I was in doubt as to whether to drain or not, and I have had cases that I thought were desperate in which I not only put in one drain, but have inserted multiple drains, and have been rewarded by seeing the patients recover.

DR. E. B. EMORY, Winfield, Kan.: I wish to quote the Mayo brothers as saying that we should keep all fluids out of the abdominal cavity in general septic conditions. Since learning this I have adopted their plan and have obtained better results by establishing free drainage at every point possible. By keeping out fluid from the abdominal cavity, using salt solution in the rectum, and establishing free drainage, we give the patient the best chance for recovery.

DR. HORACE REED, Oklahoma City: Any surgeon who opens the abdomen and handles the small intestine with impunity will almost always get uniformly bad postoperative results. I heard Dr. William J. Mayo state that formerly they had paresis following operations in the abdomen from rough handling or manipulation of the intestines.

DR. R. M. SCHAUFFLER, Kansas City, Mo.: I have had the best results in cases so bad that I have done little beyond simply opening the abdomen and establishing free drainage at one or more points.

DR. R. V. SMITH, Guthrie, Okla.: It is not pus *per se* in the abdomen that kills, but it is pent-up pus or pus under tension, and when this is evacuated by drainage, followed by normal saline solution, one's efforts are likely to be rewarded with success.

DR. BACON SAUNDERS, Fort Worth, Tex.: One important point is to do something to these patients before, during or after operation, to keep up blood pressure and to keep up elimination. The results obtained by Dr. Taylor were due more largely, I think, to the quantity of normal salt solution that he left in the peritoneal cavity than to any other one thing. He would have had the same results if he had put it in the patient's vessels, or had put it in the vessels indirectly through the rectum or by subcutaneous diffusion. He diluted the toxins by so doing, then got out of the way, and gave his patients an opportunity to recover by the aid of their normal recuperative powers. That is the great lesson of modern abdominal surgery.

DR. J. W. MCLAUGHLIN, Austin, Tex.: The modern explanation of physical facts is the ionization theory. When one puts salt in water in the percentage spoken of, 0.75 per cent., the salt is separated into ions. It does not remain in the salt. There is the ion of chlorin and the ion of sodium, and this observation leads me to think that possibly the chlorin may have more effect as an antiseptic than we give the salt credit for. Possibly it is the chlorin that has the antiseptic effect.

DR. J. M. TAYLOR: I do not claim that the small amount of salt used is an antiseptic. I do not know whether it is or not. I know it did the work in these cases through stimulation. The very presence of normal saline solution in the peritoneal cavity overcomes shock. I know it is against the rules of the medical profession to close up the abdomen in such cases as I have mentioned, but when we introduce drainage in the abdominal cavity or any other foreign body into that cavity, there occurs adhesion of the parts around the drainage tube, thus closing other parts of the cavity. That is what it did in the cases I have referred to, in which I removed a drainage tube, having had total obstruction of the bowels, finding the tube was not communicating with the peritoneal cavity, that pus accumulating in any other part could not get out. I believe it is better to close the abdomen in such cases, after having thoroughly cleansed, and when an abscess or pus forms at any other point, then it will be time to institute drainage.

Arteriosclerosis.

DR. JOHN T. CLEGG, Siloam Springs, Ark.: This disease begins as an inflammatory obstruction of the arterial capillaries, next involving the vaso vasorum, resulting in pathologic changes in the structures of the walls of the vessels, increased blood pressure, failure of nutrition, and all the phenomena the disease manifests. The affection is oftenest found in the aged, but senility is the result and not the cause of the disease. The real cause of the malady is unknown, but it is probably a micro-organism the nature of which has never been observed.

Extrauterine Pregnancy.

DR. J. H. WHITE, Muskogee, Okla.: I believe as time goes on the deferred operation will be the operation of choice. While there will be cases coming up which demand immediate operation, they will prove rather the exception than the rule. Hemorrhage and shock are the symptoms we most fear, and a short period of observation will tell the experienced surgeon whether waiting will be advantageous or detrimental to the patient. Shock of operation should certainly not be added to the shock of hemorrhage when it is possible to avoid it. Two of my patients were operated on five days after a history of rupture, and another eight days after a history of rupture. While only a small number, they go to increase the list of successful cases treated under deferred operation.

Coexistence of Symptoms of Appendicitis and of Right Kidney and Ureteral Irritation.

DR. LE ROY LONG, McAlester, Okla., reported three cases in which the symptoms of appendicitis and of right kidney irritation coexisted:

The cases reported are selected to show that the symptoms may be present in the three commoner forms of appendicitis: First, inflammation of a moderate type without adhesions, when the symptoms are due to an expression through the nervous system; second, inflammation of a severe type with postcecal adhesions, but without suppuration, when the symptoms are due to involvement of a ureter in the inflammatory process; third, inflammation of a severe type resulting in postcecal adhesions, and subsequent abscess formation, when the symptoms are due to (*a*) involvement of the ureter in the inflammatory process, and (*b*) to perforation of the ureter, a part of the contents of the abscess thus escaping into it.

Chorioepithelioma.

DRS. A. L. BLESH and C. E. LEE, Oklahoma City, contributed a joint paper on this subject, in which they reported a case and drew the following conclusions:

(1.) It is known that when this new growth occurs by metastasis locally within the maternal organs, or metastasis into the fetus, it is through the circulation. (2.) If perverted in the performance of its physiologic function, the chorion will become pathologic for either the mother, or deposit within the fetus a focus for a future fatal new growth. (3). When there exists an excess of syncytium and Nature is unable to accommodate the same, there is then an extreme probability of the same metastasizing. (4.) Owing to the fact that deportation occurs through the circulation, instead of the lymph ducts, this new growth early assumes a rapidly increasing and unfavorable condition for recovery. (5.) Even with an early diagnosis, followed by prompt surgical intervention, one can at best give only a guarded prognosis.

The State's Duty to the Physician.

DR. A. H. MADRY, Aurora, Mo.: The medical profession should deliberate on and advise the state and nation of those sanitary things which are for the professional and public good, and before long there will be left no just grounds for saying that either is not doing its duty to the profession because the mutual benefit to come from such a relationship will have become one of its most highly valued assets.

The Therapeutic Renaissance.

DR. CHARLES W. FISK, Kingfisher, Okla.: This generation has seen marvelous advancement in the science of medicine, and we are only at the threshold of still greater and more wonderful achievement. In the application of remedies for the cure of disease, in practical therapeutics, whether justly or unjustly, we as a profession stand condemned before the great bar of public opinion. Formerly it was the custom of pharmaceutical houses to send out samples of new drugs to be given a clinical trial by the general practitioner. Each bottle of fluid extract or tincture was plainly labeled with a care-

fully prepared outline of its probable physiologic action and therapeutic indications for use. As a result, some really valuable additions have been made to our materia medica. The public began to believe that the efficacy of a remedy has no necessary relation to its nauseous taste. There grew a demand for more palatable prescribing. Samples of ready-made combinations began to be supplied, cough syrups, anodynes, diuretics, etc., of elegant appearance, each constructed with more or less reference to a definite physiologic action, thus appealing in a measure to the intelligence of the medical profession.

Gradually a change has come, so gradually that we have scarcely realized how far we have wandered from the way of safety. Without protest, physicians are now sampled by the detail men with specifics for every important disease that is known to the diagnostician. It is an undisputed fact that many physicians who know better are using in their important cases medicines that are compounded by those whose ignorance is equaled only by their audacity. As a natural result of this practice, there appears to be a growing distrust in the efficacy of all medication. The remedies that are pronounced certain in their results and are supported by the testimonials of eminent men are the secret proprietaries.

About three years ago the American Medical Association established its Council on Pharmacy and Chemistry. This Council was instructed to prepare a list of the new and nonofficial remedies for the guidance of the profession. The requirements were reasonable, asking only the exact truth about the remedies and that no extravagant claims be made and no special appeal to the public by printing names of diseases for which the formulæ are recommended. The Association acted wisely. The demand is reasonable and should be insisted on. A refusal to comply with it should be looked on with suspicion.

Necessarily, the work of the Council has been largely destructive, but this destruction must necessarily precede reconstruction. If there is to be a real reform, it is first necessary that we feel a real, pressing need of reformation. When the list of new and nonofficial remedies is completed there must be a still further and more important destructive criticism of the many remedies that have complied with the requirements of the Council. The final result of this movement will be determined by the great body of the medical profession. The responsibility is ours. We owe much to serum therapy, but from its very fountainhead comes the significant statement: "The future of medicine is in pharmacology." Some of the most bitter opponents of rational therapeutics will be found within our own ranks. There are physicians closely connected with business ventures who will be injured if this reform is carried to a successful issue. THE JOURNAL of the American Medical Association needs to carry on its campaign of education. The articles on therapeutics supply a real need. Much more attention should be given in its pages to general medicine and pharmacology until the names of our great clinicians become as familiar as those of our great surgeons.

The great discoveries of the future will not be in the line of new remedies, but in the more perfect knowledge of those we already have. The battle is on. The American Medical Association sounds the call to action and expects every man to do his duty. The struggle is for the uplift of our profession, not only now, but for the future. If we stand shoulder to shoulder, our demand for a more rational therapeutics will be felt to the remotest hamlet of our country, and our noble profession will enter on a new era, purged of the dross that has so long encumbered us.

Tuberculosis of the Bladder.

DR. BRANSFORD LEWIS, St. Louis: Although this disease was formerly believed to be both primary and secondary in its development, vesical tuberculosis is now recognized as practically always secondary, some other organ or part of the body being the original focus. Bladder infection is accomplished in five ways: Through the blood channels, through the lymph channels, by means of the secretions, by continuity, and by contiguity. The local evidences, dependent largely on the stage of the infection, I describe as also the characteristic sypmtoms and signs, the principal value of which is to attract the attention of the patient and point the way to the investigation that leads to the definite diagnosis at a time when the diagnosis will be of service, that is, in the early period of the disease.. Red blood cells in microscopic number in the urine often precede the development of outspoken symptoms many months or years. I do not agree with the current sentiment that urinary tuberculosis means rigid exclusion of instrumentation, either for diagnosis or treatment. The only sure way to differentiate smegma bacilli from tubercle bacilli is to exclude the smegma organisms from the specimens in obtaining the latter. The treatment can be divided into palliative and curative, by means of hygienic, medicinal and operative measures, the latter relating chiefly to the original focus of the infection. Through these means vesical tuberculosis is a curable malady in numerous instances. Locally, iodoform-oil emulsion is a valuable remedy.

Treatment of Cancer of the Rectum, with Remarks on the Curability of Cancer.

DR. ROLLIN H. BARNES, St. Louis: It is surprising how many physicians have the impression that cancer is incurable, and that the only justifiable methods of treatment are palliative. It is not right for the physician to go ahead treating the confident patient by these measures without explaining the character of the disease and the clear facts and possibilities of the different methods of treatment, allowing the patient an opportunity to have a voice in the method to be pursued.

Would we question a cure in considering any other disease, if we were able to present patients who had been well for twenty years without recurrence? It is not only a question of cure, but the prolonging of life and usefulness, which is the great duty of the physician. Too many conditions are dependent on a conclusion as to which are operable cases, and we can not solve this question of operable cases by rule. Experience teaches us to sum up the general conditions and enable us to draw our conclusions as to whether or not the condition is operable. No one who has watched the suffering under palliative measures, the painful stools, especially if the growth is near the anus, the offensive discharges, the hemorrhages, and the offensive odors that are sure to come whether colostomy is performed or not, and compare it to the condition of the patient in which an excision has been performed, would hesitate in his own case as to which he preferred. When one dooms a patient to sure death by palliative measures all hope and ambition are gone and life is gloom. Excision gives a chance for a cure, no matter how little, and stimulates a hope of living which to all is our ambition and makes life worth living. Negligence often means malpractice.

Officers Elected.

The following officers were elected: Dr. Jabez N. Jackson, Kansas City, president; Drs. Mahlon A. Kelso, Enid, Okla.; Joseph D. Becton, Greeneville, Texas; St. Cloud Cooper, Fort Smith, Ark.; and Middleton L. Perry, Parsons, Kan., vice-presidents, and Dr. Fred H. Clark, El Reno, Okla., secretary (re-elected).

San Antonio, Texas, was selected as the meeting place for 1909.

Medicolegal

Use of Mortality Tables Not Dependent on Race, Color, Time or Place.

The Supreme Court of Washington says that in the personal injury case of Suell vs. Jones the admission of mortality tables in evidence was objected to on the ground that such tables have no application to negroes, the plaintiff being a negro. But their admission was not error. We know that mortality among males is greater than among females. We know that, as we proceed from the temperate to the torrid zone, mortality increases as we go south; that heat stimulates the vital functions so that maturity is reached earlier and decay commences earlier. We know that food, air, raiment,

and environment are important factors in prolonging and shortening life. But, notwithstanding these differences, the practice of admitting standard mortality tables in evidence whenever it becomes necessary to estimate the value of annuities, dower, curtesy, or damages for wrongful act has become too well established to admit of question, and the application of the rule governing their admission does not depend on race or color, time or place. Of course, the tables are not binding on the jury. They are competent evidence to assist the jury.

Another State Against Liability for Mere Fright or Shock.

The Supreme Court of Ohio, deciding the question for the first time for that state, holds, in the case of Miller vs. Baltimore and Ohio Southwestern Railroad Company, that no liability exists for acts of negligence causing mere fright or shock, unaccompanied by contemporaneous physical injury, even though subsequent illness results, where the negligent acts complained of are neither willful nor malicious.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal.

October 31.

1 *Origin of Syphilis and the Invention of Its Name. J. Knott, Dublin, Ire.
2 Precipitate Reactions with Lecithin, Sodium Glycocholate, and Sodium Taurocholate, and Sodium Taurocholate for the Diagnosis of Syphilis. W. J. Butler and W. T. Mefford, Chicago.
3 Popular Lecture in the Crusade Against Tuberculosis. S. A. Knopf, New York.
4 *Expectant Treatment of Pulmonary Tuberculosis. A. B. Judson, New York.
5 *Family Tuberculosis. W. C. White, Pittsburg, Pa.
6 Six Months' Work in the Brooklyn Hospital Dispensary First Surgical Division. J. E. Blake, Brooklyn.
7 Insufficientia Pylori versus Einhorn's Achylia Gastrica. M. I. Knapp, New York.

1. Syphilis.—This is a highly interesting historical article in which Knott gives a history of Fracastorius and his poem on syphilis, and brings a vast mass of evidence to sustain the view that the serious outbreak in the early sixteenth century was probably due to the rejuvenescence of the disease consequent on the inoculation of Columbus' sailors with virus derived from individuals of a remoter race. This would reconcile the evidences of its pre-existence in a modified form with the outbreak of a virulent epidemic.

4. Abstracted in THE JOURNAL, November 14, page 1628.

5. Family Tuberculosis.—White records in detail the essential facts of a case of family tuberculosis, which may be recapitulated as follows: There developed in 15 months 8 cases of tuberculosis in a family of 9 who had not lived together for 10 years, who were scattered in 6 different homes in 5 different American and Canadian cities. The ages of the victims ranged from 71 to 20 years. There was no known source of infection; they had always lived under the best conditions. Four were diagnosticated by the presence of tubercle bacilli, one by tuberculin, and three by physical signs and symptoms. White made or confirmed the diagnosis in every case. The members of the family were brought up on milk without other beverage save water until they left home. The father consumed large quantities of cream. The mother, who escaped, took very little milk, no cream save in her tea, and very little butter. About the time the family ceased to live together they moved into a new house, and the source of milk was shortly after changed. The symptoms of intestinal distress were common to all patients. They were so marked in two cases that the appendix was removed from each under the supposition that this was at fault. The tubercle bacilli were, in the four cases in which they were found, of similar morphologic structure, that conforming to the bovine type as described by Weber and others; short, thick forms, irregular in outline. Careful inquiry failed to reveal any source of infection of human origin. It is necessary to explain the facts in one of the following ways: All were infected individually in such a way as to render possible the malady making itself evident in each at approximately the same period of time. Far more likely is the other possibility that all were infected with approximately equal doses at approximately the same time from some source other than human. The study of this family has stimulated the suggestion that we too often, perhaps, neglect the questions of dosage of bacilli in tuberculosis and the following incubation period. White is not prepared to lay down any law governing these points, but at the present time he feels convinced that the progress of any case of tuberculosis depends more on the number of bacilli received within a given period than on any other one factor.

Medical Record, New York.

October 31.

8 *Intestinal Infection and Immunity in Tuberculosis. A. Calmette, Lille, France.
9 Myth and Mystery of Ménière's Disease. G. M. Gould, Ithaca, N. Y.
10 *Epileptic Voice Sign. L. P. Clark and E. W. Scripture, New York.
11 What Factors are Necessary in Addition to Asepsis to Secure Healing by Primary Union? R. W. Westbrook, Brooklyn.
12 Leprosy Apparently Cured with the X-Rays. V. G. Heiser, Manila.

8. Immunity in Tuberculosis.—Calmette discusses intestinal infection and immunity in tuberculosis, and reports experiments which, he holds, strongly support the statement that, by the intestinal absorption of a weak and single dose of tubercle bacilli very finely divided, one can obtain at the same time the total absorption of the bacilli in the lymphatic system, and a state of immunity such that the animals are insusceptible, during a year at least, to large infections through the digestive tract. Without doubt, it is not a matter of a method of vaccination which one could think of employing in preserving the human race from tuberculosis. It would be rash to consider a definite solution of this sort as very near. But so difficult a study can proceed only by stages.

10. The Epileptic Voice Sign.—Clark and Scripture note that there is something peculiar and distinctive in the epileptic voice—an expressionless quality. With a view to analyzing the voice in epileptics, they have applied the newer methods of voice study, and present what they term the "epileptic voice sign" as the result thereof. It consists of the curves made on a rapidly revolving smoked drum when the patient speaks into a mouth piece, connected to a small metal cup covered at the top with thin rubber on which rests a lever, impinging on the smoked drum. Each wave of a record is measured and the pitch calculated. The successive pitches are plotted on millimeter paper and the tops of the ordinates, connected by a line, constitute the "melody plot." The peculiarity in the melody strikes the eye at once. Instead of the continuous rise and fall in melody, the vowels and phrases run along on the even tone. The speech of an epileptic is, in fact, "plateau speech"; that is, his melody proceeds by even steps. The voice sign seems to develop with the disease, the more severe the epilepsy and the longer its duration, the more marked is the voice sign. The sign appears to depend on the underlying brain degeneration, of which the epileptic fits are also an expression. It persists at least several years, even in the absence of fits, showing perhaps that a prolonged absence of fits in epilepsy does not really indicate that a cure has been accomplished. By appropriate exercises epileptics can learn to speak normally.

Boston Medical and Surgical Journal.

October 29.

13 *Fractures of the Os Calcis. F. J. Cotton and L. T. Wilson, Boston.
14 Ethmoid Cells at Birth and Their Development During Fetal Life. E. J. Curran, Bathurst, Australia.
15 *Coincident Tubal and Intrauterine Pregnancy. C. M. Green, Boston.
16 Serum Treatment of Epidemic Cerebrospinal Meningitis. F. T. Fulton, Providence, R. I.
17 *Bursitis Subacromialis, or Periarthritis of the Shoulder-Joint. (Subdeltoid Bursitis.) (Continued.) E. A. Codman, Boston.

13. Fractures of the Os Calcis.—Cotton and Wilson consider only that type of fracture of the os calcis due to crushing. What we really need to know in regard to the result of this,

or any other fracture, that can be called approximately a type, is (a) the results as to function: (b) when there is loss of function, the proximate causes of such loss, whether from deformity, limitation of motion, weakness, or what not; (c) how do the cases that result badly differ from the more fortunate ones in lesion or in treatment; (d) what can be done to avoid bad results; (e) what, if anything, can be done to remedy bad results when they have occurred. The authors discuss each of these heads in detail, and emphasize in this preliminary paper the following points:

Comminuted fracture of the os calcis is relatively common.
Nearly all cases are of substantially the same type.
The results are frequently so imperfect as to interfere seriously with work or to disable the sufferer entirely.
The cause of disability is not the fracture as such, but certain displacements, which should be remediable, or rather preventable. The treatment ordinarily advocated and carried out is no treatment at all. We have all of us been guilty of what is very nearly criminal negligence in regard to these cases.
Certain measures are practicable in the treatment of fresh cases that will minimize, or often prevent, the special displacements which are the cause of disability. It is our duty to adopt a routine embodying some such measures.
Provided such measures have not been carried out, and provided disability is present, palliation is possible by apparatus in some cases, while in others operations of no great gravity or technical difficulty will insure decided improvement of function.

15. **Coincident Tubal and Intrauterine Pregnancy.**—Green describes a case which he holds to be unquestionably a coincidental intrauterine and extrauterine pregnancy. He urges the following facts in support of the view that the extrauterine pregnancy took place some time after the intrauterine pregnancy:

1. It is not an anatomic impossibility.
2. This patient was regularly exposed to the possibility of becoming pregnant.
3. The tissues of both fetuses stained well, suggesting that neither had been long dead.
4. The fetus within the uterine cavity corresponded to one at about the fourth month of normal gestation; the fetus within the Fallopian tube might be easily mistaken for one at about the sixth week of normal pregnancy.
5. The placental tissues of the ectopic gestation covered a considerable area and their blood supply was good, affording sufficient nourishment to have developed a fetus within four months considerably larger than this one.
6. The placental site within the uterus, as determined by curetting, was the side opposite the tube that contained the ectopic gestation, making access to this tube possible.

17. **Bursitis Subacromialis.**—Codman continues his consideration of this subject and discusses the symptoms under the three following types: 1, Acute or spasmodic; 2, subacute or adherent; 3, chronic or non-adherent. He then takes up in detail the diagnosis from tuberculosis, fractures of the tuberosity and of the anatomic and surgical neck, deep axillary abscess, muscular rheumatism, chronic rheumatic conditions, acromio-clavicular arthritis, circumflex paralysis, inflammation of the sheath of the biceps tendon, and brachial neuritis.

Virginia Medical Semi-Monthly, Richmond.

October 9.

18 Tuberculosis of the Bladder. W. Karo, Berlin, Germany.
19 Pathogenesis and Specific Treatment of Typhoid. A. G. Brown, Richmond.
20 Elements of Diagnosis Between Spasmodic Movements of the Face and the Neck. T. A. Williams, Washington, D. C.
21 Principles Concerned in the Treatment of Intra-Abdominal Tumors. (To be continued.) G. P. LaRoque, Richmond.
22 Principles of Surgery. S. McGuire, Richmond.

October 23.

23 Correlation of the Physician and the Layman. W. F. Drewry, Petersburg, Va.
24 Medical Side of the Alcoholic Problem. T. D. Crothers, Hartford, Conn.
25 Principles Concerned in the Diagnosis of Intra-Abdominal Tumors. (Concluded.) G. P. LaRoque, Richmond.
26 Perforating Wounds of the Uterus. Inflicted During the Course of Intrauterine Instrumentation. A. P. Heineck, Chicago.

Medical Fortnightly, St. Louis.

October 26.

27 Charcot Type of Exophthalmic Goiter. L. Crummer, Omaha, Neb.
28 *Most Rapid, Effective and Least Bloody Method of Turbinal Removal. C. C. Miller, Chicago.
29 Cerebrospinal Fever—Epidemic Cerebrospinal Meningitis; Spotted Fever. T. G. Stephens, Sidney, Ia.

28. **Removal of Turbinates.**—Miller recommends, as the most rapid, effective and least bloody method of removing the turbinate bone, the use of a hemostatic forceps. The mucosa is cocainized with 2 per cent. solution of cocain. The forceps is then placed accurately with its jaws above and below the hypertrophy and locked. It should be rotated and not pulled on until freed from the base of the turbinate. The bone snaps cleanly along the margin of the jaws and the soft parts give way within the grasp of the forceps, sealing the vessels.

Annals of Surgery, Philadelphia.

October.

30 *Cancer of the Mouth and Tongue. J. C. Warren, Boston.
31 *Method of Operation in Extensive Cancerous Growths of the Cheek Involving the Jaw. L. W. Hotchkiss, New York.
32 *Recurrence at a Late Period after Operation for Cancer of the Breast. W. M. Mastin, Mobile, Ala.
33 Osteoplastic Resection of the Costal Arch, Followed by Resection of Lesser Curvature of Stomach and Esophagus, and Esophagostomy. J. Weiner, New York.
34 *Arrest of Hepatic Hemorrhage Due to Trauma. J. H. Pringle, Glasgow, Scotland.
35 *Cause of Sudden Fall in Blood Pressure While Exploring the Common Bile Duct. J. L. Ransohoff, Cincinnati, Ohio.
36 *Method of Facilitating the Avoidance of Infection During Intestinal Anastomosis—Preliminary Report. J. Halpenny, Winnipeg, Man.
37 Primary Carcinoma of the Appendix. A. E. Garrow and C. B. Keenan, Montreal.
38 Carcinoma of the Appendix Vermiformis. G. H. Monks, Boston.
39 *Chyle Cysts of the Mesentery. W. B. Brinsmade, Brooklyn, N. Y.
40 Etiology of Hydronephrosis. F. E. Gardner, New York.

30. **Cancer of the Mouth and Tongue.**—From a review of the literature and analysis of statistics, Warren arrives at the following conclusions:

1. The relation of the lymphatic system to the primary growth is the most important anatomic consideration in operations for cancer of the mouth and tongue.
2. Chronic inflammatory processes of the mucous membrane which do not yield promptly to local treatment, are of importance as predisposing or precancerous conditions, and should be treated surgically.
3. Cancer of the mouth and tongue is a local disease limited to the tissues immediately surrounding its point of origin, and to the adjacent system. Internal metastases are rare.
4. Microscopic examination of the primary growth should be made the crucial test of diagnosis in doubtful cases, and should be done preferably at the time of the operation. Antisyphilitic treatment is not a sure guide, and should not cause delay in surgical interference.
5. The modern operative treatment of cancer of the mouth and tongue involves: (a) Preliminary treatment of the cavity of the mouth; (b) protection of the respiratory tract by drugs, and by intubation of the pharynx or laryngotomy, or by position; (c) removal of the tumor with a margin of one inch, if possible, of healthy tissue; (d) block dissection of the lymphatic bearing tissues of the anterior cervical triangle, on one or both sides as a routine measure; (e) a lower operative mortality may be obtained by performing the block dissection of the neck as a secondary operation about two weeks after the excision of the primary disease; (f) the intrabuccal operation is inadequate to reach the entire operation field, and should be supplemented by a dissection of one or the anterior cervical triangle; (g) the submaxilliary route, although it permits a block dissection, does not give such free access to the diseased tissues as is demanded in an operation for cancer; (h) the route through the jaw exposes the whole field of operation, and enables the surgeon to see what operating on the surface of the body, but division of the lower jaw, as at present performed, adds greatly to the surgical risk.
6. The ideal operation of the future should contemplate a free exposure of the mouth and anterior cervical tissues as one continuous area, with a block dissection of its diseased contents. The use of mechanical devices for protection of the respiratory tract, and the perfection of technical details of the operation, along the lines suggested, should enable us to perform an operation of this character without incurring the large mortality which is now to be expected.
7. The mortality varies with the extent of the operation and is lowest (5 per cent.) with the intrabuccal operation, and highest (30 to 35 per cent.) in the operation involving division or resection of the lower jaw. Death is, as a rule, attributable to shock, sepsis or bronchopneumonia.
8. In a series of cases taken consecutively from the records of the Massachusetts General Hospital, 112 operations on cancer of the tongue and mouth resulted in 16 patients free from recurrence over 3 years after operation (14.2 per cent.) All diagnoses were supported by pathologic examination of the tissue.
9. Of 57 patients with cancer of the tongue, 10 (17.5 per cent.) were cured by operation.
10. Local recurrence of the disease occurred more frequently in the lymphatic glands alone. In only one of these patients did recurrence make its appearance at a period of more than three years after the operation.

31. **Operation for Cancer of the Cheek.**—Hotchkiss describes an operation for attacking extensive growths of the cheek. The essential features are: Rapid, clean dissection with a knife, careful retraction to avoid bruising of the tissues, isolation and removal of all the glands and infected fat in the area tributary to the growth, preferably from below upward, and with the least possible handling; ligation of the external carotid artery or temporary compression of the common carotid, after the method of Crile; stopping all bleeding, and finishing the work in the neck and clearing the jaw before the cavity of the mouth is entered; then rapidly removing the tumor, skin, bone and infected glands, *en bloc*, and completing the operation as soon as possible by stitching the plas-

tic flap into place and providing for drainage and suture of the neck.

32. **Late Recurrence of Cancer of Breast.**—Mastin reports a case of a Sister of Charity, 50 years of age, who had the left breast removed for carcinoma (confirmed microscopically) in November, 1885. There was no recurrence of the neoplasm, until the summer of 1903, when a small nodule was found in the skin at the sternal end of the tender and painful operation scar. Mastin describes its condition in 1907. Patient is fleshy and well nourished and refuses further operation.

34. **Arrest of Hepatic Hemorrhage.**—The permanent arrest of hepatic hemorrhage is, in Pringle's opinion, best effected by ligation of the liver tissue in mass in every case in which that is possible, but in some cases it may not be practicable, and then we shall have to rely solely on packing.

35. **Fall of Blood Pressure.**—Ransohoff reports experiments from which it is seen that a marked fall of blood pressure occurs when the common duct is explored by introducing the finger into the foramen of Winslow, and continues at a low level while the finger is held in place. It is due entirely to pressure on the portal vein. He draws the practical conclusion for operation, that the digital exploration of the common duct should be intermitted at short intervals to allow the circulation to regain its normal tone.

36. **Intestinal Anastomosis.**—Halpenny has devised the following operation to obviate the difficulty in lateral anastomosis, arising from infection of the field of operation at the time the artificial opening is made and before it is enclosed by suture: The mesentery is treated in the usual way. The cut ends of the intestine are inverted by two Halsted stitches. The intestine is lapped about four inches and a continuous silk suture fastens the two limbs together by going up just alongside the center, opposite to the mesentery and back again just as far from the center of the intestine as the former line of suture, and on the opposite side. A special knife is then inserted entering the lumen of the bowel near one end of the intestine, and with the blade parallel to the circular fibers. It is passed along the lumen of the bowel as far as the shank will allow and the artificial opening is made through the two layers of bowel by cutting back. A purse-string suture is then placed about the knife, and, the knife being withdrawn, the hole is closed. The knife is made with a narrow short blade and a long shank. The blade makes a very small hole, and the long shank allows the knife to pass up far enough in the intestine to make an opening sufficiently large. There is no danger of cutting the stitches, neither is there any danger of cutting too deeply.

39. **Chyle Cysts of Mesentery.**—Brinsmade reports two cases and tabulates twenty-four, including his own. From analysis of these cases he concludes that chyle cysts of the mesentery are rare, but may occur at any age, and may be of almost any size. In diagnosis they are hardly to be differentiated from other fluid tumors of the abdomen. They are freely movable and are found in the umbilical region. They are not true cysts, and no attempt at extirpation should be made. The safest procedure is to suture the mesenteric wall of the tumor to the parietal peritoneum, then incise, evacuate the chyle and drain.

Journal of Biological Chemistry.

October.

41 Chemistry of the Liver in Chloroform Necrosis (Delayed Chloroform Poisoning). H. G. Wells, Chicago.
42 Influence of Temperature on the Solubility of Casein in Alkaline Solutions. T. B. Robertson, San Francisco.
43 Researches on Pyrimidins: The Action of Diazobenzene Sulfonic Acid on Thymin, Uracil and Cytosin. T. B. Johnson and S. H. Clapp, New Haven, Conn.
44 Mode of Oxidation of Phenyl Derivatives of Fatty Acids in the Animal Organism. H. D. Dakin, New York.
45 Hydrolysis of Vicilin from the Pea. T. B. Osborn and F. W. Heyl, New Haven.
46 Hydrolysis of Legumelin from the Pea. Id.
47 Method for the Quantitative Determination of B-Oxybutyric Acid in Urine. P. A. Shaffer, New York.
48 *Influence of Complete Thyroidectomy and of Thyroid Feeding on Certain Phases of Intermediary Metabolism. F. P. Underhill and T. Saiki, New Haven, Conn.
49 A Globulin from the Egg Yolk of the Spiny Dog Fish (Squalus Acanthias L.) C. L. Alsberg and E. D. Clark, Boston.
50 *Chemical Evidence of Peptonization in Raw and Pasteurized Milk. R. H. Colwell and H. C. Sherman, New York.
51 Preliminary Study of the Sensitizing Portion of Egg White. M. F. Leach, Oxford, Ohio.
52 *Milk Proteins. G. A. Olson, Madison, Wis.
53 Use of the Fermentation Tube in Intestinal Bacteriology. C. A. Herter and A. I. Kendall, New York.
54 *Fate of *Bacillus bulgaricus* (in bacillac) in the Digestive Tract of a Monkey. C. A. Herter and A. I. Kendall, New York.

48. **Thyroid and Metabolism.**—Underhill and Saiki summarize their results as follows: After complete thyroidectomy (and parathyroidectomy?) in dogs, the ammonia output in the urine is increased, even beyond what is observed in starving animals. The urinary nitrogen eliminated as creatinin, purin bodies and allantoin, is about equal in amount to what has been noted in fasting dogs. As in normal fasting dogs, a variable and frequently not inconsiderable output of creatin was observed. Thyroidectomized dogs are incapable of utilizing subcutaneously introduced dextrose in anywhere near the same degree as normal animals. It is thus suggested that the loss of the glands may occasion a change in the gaseous metabolism similar to that which has been observed in myxedema, cretinism, etc. Thyroid tissue fed to normal dogs causes a slight increase in urinary nitrogen excretion. This influence soon disappears on cessation of thyroid administration. Small doses of thyroid appear to have as pronounced an influence on the nitrogen elimination as larger ones. A larger output of purin-nitrogen and a low output of phosphorus were observed after the continued administration of large doses of thyroid tissue. Thyroid feeding produces little change in the interrelation of the nitrogenous urinary constituents. This is in harmony with the accumulating evidence that these relationships are upset only by exceptionally profound disturbances in the nutrition of the cells.

50. **Peptonization in Milk.**—It is well known that milk which has been heated to a sufficient temperature to destroy most of the acid-forming bacteria may still contain putrefactive or "petonizing" organisms, and it has been suggested that this may constitute an objection to the pasteurization of milk as a preservative measure, since the latter forms may grow more readily after destruction of the former and the absence of a sour odor or taste may result in the milk being used as food after objectionable products have been formed by the action of these putrefactive or "peptonizing" bacteria on the milk proteids. Experiments based on the amount of ammonia developed have shown that pasteurization is less efficient in checking the development of ammonia than in checking the production of acid, and this was especially true of the milk pasteurized at the higher temperature (85 C.), which before becoming sour showed the amount of ammonia considerably in excess of that contained in unpasteurized milk of the same age and origin. Colwell and Sherman have supplemented the study of ammonia content by comparative tests for peptone in samples kept raw and after pasteurization at different temperatures. The results may be summarized as follows: Pasteurization at 60 C. appears to have restrained peptonization to about the same extent that it restrained souring. It apparently had no constant effect in rendering the milk either more or less liable than raw milk to the development of offensive odors. Pasteurization at the higher temperatures (75 and 90 C.) delayed souring to a much greater extent and had less restraining effect on peptonization. The samples pasteurized at 75 and 90 C. developed much more offensive odors than those of the same origin pasteurized at 60 C. or not at all. While the development of an offensive putrid odor does not necessarily run parallel either with the ammonia content or with the intensity of the biuret reaction, and while it is evidently incapable of exact measurement, it must be regarded as of considerable sanitary significance, since it indicates the predominance of an objectionable type of change. The results of this investigation, together with that of the effect of pasteurization on the development of ammonia in milk tend to emphasize from the standpoint of the subsequent chemical changes the desirability of low temperatures, as recommended by Rosenau and others, in pasteurizing milk when necessary as a safeguard against infectious diseases, and the objectionableness of depending on

pasteurization as a preservative measure. The importance of keeping milk cold and consuming it quickly are apparently not diminished by its pasteurization, even under conditions so favorable as to preclude subsequent contamination.

52. **Milk Proteins.**—Olson has discovered a new protein in milk, cream and butter, which is very rich in nitrogen, containing 18.93 per cent. of the same. This protein has the power of digesting casein, which is most active in neutral milk at 65 C. (151 F.). The ferment is destroyed at 80 C. (176 F.). The filtrate obtained after the removal of the new protein also has digestive properties.

54. **Bacillus Bulgaricus in the Digestive Tract.**—Herter and Kendall reach the following conclusions as to the fate of the Bulgarian bacillus of Metchnikoff in the digestive tract:

1. By feeding a rhesus monkey for two weeks exclusively on milk fermented with *B. bulgaricus* (but containing also some yeasts), it was possible to maintain an acid reaction throughout the digestive tract. The acid reaction was more pronounced above the ileocecal region than at this region or below it. The acidity decreased progressively from the ileocecal region to the anus. Lactic acid was detectable at every point in the digestive tract that was tested, the reaction growing less marked below the ileocecal region.

2. Exclusive feeding for two weeks with milk fermented with *B. bulgaricus* failed to establish the predominance of this organism in the ileocecal region or in the large intestine. In the latter situation the number of bacilli of this type was relatively small and decreased toward the anus. Thus in the regions characterized by most active putrefaction the lactic acid bacilli failed to establish themselves in relatively large numbers.

Mississippi Medical Monthly, Vicksburg.

October.

55 Pathology and Treatment of Acute Suppurative Otitis Media. B. D. Sibley, Birmingham, Ala.
56 Forceps. P. A. Carter, Hattiesburg.
57 Case for Diagnosis. G. F. Carroll, Biloxi.
58 Obstetrics in the Country. M. L. Batson, Leakesville.

Therapeutic Gazette, Detroit.

October.

59 Chronic Recurrent Suppurative Otitis Media and Its Relation to Mastoid and Intracranial Complications. S. M. Smith, Philadelphia.
60 Enzymes of the Human Pancreatic and Intestinal Juice Obtained Through a Jejunal Fistula. J. H. Hoelscher, Chicago.
61 Hold Fast to That which is Good in Diagnosis and Therapeutics. H. A. Hare, Philadelphia.
62 Indications and Contraindications for the Use of Digitalis. A. D. Blackader, Montreal.

Ohio State Medical Journal, Cleveland.

October.

63 *Value of Gastric Lavage. J. Eichberg, Cincinnati.
64 Case of Popliteal Aneurism. Treated by Matas Operation. C. F. Hegner, Cincinnati.
65 Arterial Changes in Chronic Interstitial Nephritis. C. F. Hoover, Cleveland.
66 Etiology and Pathology of Chronic Interstitial Nephritis Including the Urinary Findings. L. A. Levison, Toledo, O.
67 *Lumbago Simulating Kidney Disease. T. M. Reade, Springfield, O.
68 Recent Advancements in Eye, Ear, Nose and Throat Work Through Bacteriotherapy. O. Berghausen, Cincinnati.
69 Hematuria. C. D. Kurtz, New Philadelphia.
70 Hay Fever. J. F. DeWitt, Canton.

63. **Gastric Lavage.**—Eichberg thinks the profession to blame in not making more general use of gastric lavage. He emphasizes the following points in the technic:

1. Assure the patient that he can and will succeed, though the sensation will be slightly disagreeable.
2. Tell the patient not to hold his breath when the tube enters the pharynx, but to close the teeth gently on the tube, take a long, full breath, let it out again and repeat this maneuver two or three times.
3. Have the patient keep the head bent slightly forward (the patient being seated), so that the tube shall follow the posterior wall of the pharynx, thereby avoiding the irritation of the epiglottis or the entrance to the larynx.
4. Use a tube of moderately large size and of a certain rigidity. The tube is often made too soft at the time of insertion by being placed in hot water. Cold water is greatly to be preferred.
5. Use no oily lubricant. Cold water, with the addition of the normal salivary secretion, is sufficient for this purpose.
6. Push the tube gently but quickly as soon as the tip has passed the pharynx until it reaches the stomach.

Under proper circumstances the patient can and should be taught the necessary manipulation for himself. He thinks that the best period of the day, generally speaking, is before the evening meal, for several reasons, not the least of which is the long interval before the next meal. Any condition that implies the undue retention of food products in the stomach becomes an indication of gastric lavage. He thinks the dangers of its use in gastric ulcer, though present, are overrated. In this condition, besides cleansing, the process may be used for the introduction of astringent solutions. Lavage is urgently indicated in all cases of acute or chronic dilatation. In organic, non-malignant stricture it can only constitute a temporary makeshift. In carcinoma of the stomach the same general principles apply as in chronic dilatation, with the more imperative demand for lavage due to a foul ulceration. It is of course only palliative. Its greatest use is in chronic dyspepsia, usually a chronic gastritis, also in hypersecretion. It is useful in several acute conditions, notably intestinal obstruction, postoperative ileus, acute dilatation of the stomach, recurrent vomiting of children, acute indigestion from overindulgence or decomposition of food products, and in poisoning of various kinds. It is a diagnostic measure of great value.

67. **Lumbago.**—Reade recommends the following method: The patient is placed on a couch or table in the semiprone position, leaving the muscles of the back relaxed. After carefully washing the skin with soap and hot water a little alcohol is applied to the surface. Strips of plaster measuring from 9 to 12 inches are then applied, first vertically along the spine, then obliquely across the loins, then transversely across the lumbar muscles until the whole region is firmly bound.

Bulletin Johns Hopkins Hospital, Baltimore.

October.

71 *Sir John Harrington. J. G. Adami, Montreal.
72 The School of Montpellier. W. G. MacCallum, Baltimore.
73 Dr. Elisha North, One of Connecticut's Most Eminent Medical Practitioners. W. R. Stelner, Hartford, Conn.
74 Psychiatere and Psychiatry of the Augustan Era. S. E. Jelliffe, New York.
75 *Thomas Muffet, 1553-1604. J. Ruhräh, Baltimore.

71. **Sir John Harrington.**—Adami gives an interesting historical account of this worthy, who, in the reign of Queen Elizabeth, introduced the water closet in place of the privy.

75. **Thomas Muffet.**—Rurāh describes "a type of physician which has for centuries been the ideal of the British practitioner: A scholarly and gentlemanly physician, with a love of literature, of scientific research, and particularly of natural history; a man taking a part in the life of the world as well as active in his profession."

Pennsylvania Medical Journal, Athens.

October.

76 *Physicians must be Sociologists—Their Obligation to One Another and to Society. W. L. Estes, South Bethlehem.
77 "Dyspepsia." What Does It Signify. E. Marvel, Atlantic City, N. J.
78 Prescribing Versus Dispensing. J. H. Comroe, York.
79 Prescribing Versus Dispensing. A Pharmacist's Viewpoint. E. C. Lafean, York.
80 *Nourishment of Patients During Typhoid. L. Litchfield, Pittsburg.

76. Abstracted in THE JOURNAL, Oct. 3, 1908, p. 1178.

80. **Typhoid.**—Litchfield points out that the essential feature of typhoid is the combustion of the body nitrogen, which is not proportionate to the typhoid lesions or dependent on the temperature, but is due to the toxemia, caused both by the invading bacteria and by the fermentative changes in the intestinal tract. In underfed patients this results in a terrific loss of body proteids, in which lies the greatest danger of the disease. This may often be combated by judicious feeding. Litchfield gives the following arguments for liberal feeding:

1. The maintenance of the patient's strength and nutrition at the highest possible point increases and promotes resistant, reactive and recuperative powers in the treatment of tuberculosis, sepsis and patients with extensive ulcerating surfaces.
2. The patients are more comfortable, the duration of the disease slightly shorter, convalescence more rapid, and the complications fewer.
3. No one who has tried liberal feeding conscientiously has condemned it.

Northwest Medicine, Seattle, Wash.

October.

81 *Some Needs of Our Profession. C. N. Suttner, Walla Walla, Wash.
82 Importance of After-Treatment in Surgical Cases. L. P. McCalla, Boise, Idaho.

81. **Needs of Our Profession.**—The profession's needs are stated by Suttner as a united medical profession, the punishment of quacks and quackery, the scientific cooperation of pharmacists, a restriction of the ease with which the laity is able to secure various poisonous drugs, lodge practice, urgent effort toward the prevention of the social diseases, with,

among other results, the suppression of ophthalmia neonatorum and the suppression of abortion. He urges a state sanatorium for Washington for the treatment of incipient tuberculosis, and reciprocity between Idaho, Oregon and Washington, which have a community of interest in medical matters and whose licensing requirements are equally exacting.

Memphis Medical Monthly.

October.

83 *Pernicious Malaria. W. H. Deaderick, Marianna, Ark.
84 *Melancholia in Children, with Report of Case. J. D. Bridger, Memphis.
85 What Constitutes Rational Urinology? W. Krauss, Memphis.
86 Gonorrhea in Girl Babies, with Report of Cases. E. Rosmond, Memphis.

83. Published in *Memphis Medical Monthly*, July, 1908, and *Medical Record*, July 25, 1908. Abstracted in THE JOURNAL, Aug. 8, 1908, p. 530.

84. **Melancholia in a Child.**—Bridger reports an exceedingly rare case of melancholia in a girl of 3, which was said to be due to ill treatment at an institution. The patient was removed thence to the day nursery, and Bridger reports the case as follows: She was in good physical condition, would eat anything given her, slept well and never cried or showed any displeasure at anything said or done to her. Gradually it was noticed that experiences that would please other children made no impression on her. She did not care to play with others, and would sit all day in a corner by herself, or remain anywhere or in any position in which she might be placed, without any apparent desires. She would eat when given food, but she would never even carry to her mouth a stick of candy placed in her hand unless told to do so. She would void her urine or evacuate her bowels only at the dictation of the nurse. At the height of the condition she would lie or sit in bed, absolutely motionless, took no notice of her surroundings, and could not be induced to smile or say a word. She would react very feebly to any form of cutaneous stimulation, and would, to a certain degree, tolerate pain rather than move. There was slight resistance to any attempt at passive movement of arms or legs, giving the joints a waxy sensation and the limbs would retain any position given them. Bridger has caught her hand while walking, and would stop suddenly, releasing his hold on her outstretched hand, and play with children immediately behind her, without her lowering her arm or changing her position in any way for fifteen minutes by the watch. At other times he would leave the arm outstretched and quit the room, watching her without her knowledge, from a window at her back for an hour, without her changing the position. The matron of the nursery had often noticed her retain an unnatural or uncomfortable position for hours unless told by some one to move, or unless her position was changed by some one. She gave the impression of one hypnotized, but her submissive mind was subject to any one's dictation. The only treatment given was outdoor air, good nourishing food, regulation of bowels, syrup of the iodid of iron, and the best possible environment. The first improvement was noticed in the cataleptoid condition and gradually but slowly the child became brighter, more talkative, and at the end of about three months was apparently normal in every way.

Western Medical Review, Omaha, Neb.

October.

87 Retroflexion of the Uterus. W. O. Henry, Omaha.
88 *Acute Glaucoma. D. C. Bryant, Omaha, Neb.
89 Detailed Report of a Case of Splenomegaly (Typhus Gaucher) —Splenectomy—Recurrence. T. Truelson, Omaha, Neb.
90 Metabolism of Uric Acid. L. B. Pilsbury, Asylum, Neb.

88. Abstracted in THE JOURNAL, July 4, 1908, p. 67.

Kentucky Medical Journal, Bowling Green.

October.

91 *President's Address. Kentucky State Medical Association. J. G. Cecil, Louisville.
92 Mechanical Prescription. T. Sollmann, Cleveland, O.
93 *Parallels of Bovine and Human Tuberculosis. W. A. E. Wyman, Covington.
94 *Physicians of To-day and To-morrow. D. S. Wilson, Louisville.
95 *Perforated and Infective Peritonitis. F. Boyd, Paducah.
96 Large Ventral Hernia Operation. Drs. Peak and Humphrey, Louisville.
97 The Doctor and Medical Ethics. W. Bailey, Louisville.

91, 93 and 94. Abstracted in THE JOURNAL, Oct. 31, 1908, p. 1545, 1546.

95. Abstracted in THE JOURNAL, Oct. 24, 1908, p. 1543.

Military Surgeon, Carlisle, Pa.

October.

98 Individual First Aid Packets of the Principal Armies of the World. E. Laval, French Army.
99 *Facts About the Army Canteen. A. N. McGee, U. S. Army.
100 Proposal for a National Medical Service or Department of Public Health. S. G. Evans, U. S. Navy.
101 Effects of Tropical Climate on the White Race. W. A. Wickline, U. S. Army.
102 Teaching of Tropical Medicine. J. M. Phalen, U. S. Army.
103 The Board for the Study of Tropical Diseases as They Occur in the Philippine Islands. P. M. Ashburn, U. S. Army.

99. **Army Canteen.**—McGee discusses facts and conditions which lead her to formulate the following propositions:

1. There has been somewhat less drunkenness in the army since the canteen was abolished than there was in the years when it flourished.

2. The difference in amount of alcoholism during the canteen years (before 1898) and that during the post canteen years is so slight as to show in conjunction with other facts that the presence or absence of the canteen has a decidedly minor effect on drunkenness in comparison with other influences.

3. There was an enormous increase in venereal diseases in 1899, coincident with tropical service; there was no increase in the United States in the four years following the abolition of the canteen, as compared with the two years preceding it. In the Philippine Islands there was an absolutely regular increase from 1896 to 1903.

4. The increase of saloons outside army posts, which was so generally predicted to follow an anticanteen law, did not occur at all.

5. Desertions, courts martial, etc., are due to so many causes that they were not considered worthy of thorough analysis, but so far as examined, no pro-canteen evidence was found.

6. The statement that the "army from the lowest rank up is (1907) practically unanimous in its desire to have the canteen re-established," is an opinion, proof of which could not be obtained.

7. Quite apart from the canteen, the subject of drunkenness and immorality in the army demands attention. International medical statistics show that the admission rates of alcoholism, for gonorrhea, and (British excepted), for syphilis, "were much higher than in any other army." (Surgeon-General's Report, 1907, pages 23 and 26; for 1906, pages 22 and 24.)

Ophthalmic Record, Chicago.

October.

104 *Relation Between Retinal Hemorrhages and High Arterial Pressure. L. W. Fox and W. C. Butroff, Philadelphia.
105 Smith Indian Operation in the Extraction of Fifteen Cataracts. D. W. Greene, Dayton, O.
106 Primary Epibulbar Melanosarcoma. J. Gross, St. Louis.
107 Breaking Off of Point of Knife while Performing Iridectomy. W. H. Snyder, Toledo, O.

104. **Retinal Hemorrhages and High Arterial Pressure.**—Fox and Butroff tabulate 100 consecutive cases of ocular hemorrhages from private and dispensary cases, the analysis of which leads them to the following conclusions:

A large proportion, 80 per cent., of retinal hemorrhages, occur in individuals suffering from a temporary or permanent high arterial blood pressure, due to the causes enumerated.

This excessive intravascular pressure is apparently the most frequent exciting cause of these hemorrhages.

Venesection has proved of value, not only in reducing dangerously high pressure, but in acting as a powerful stimulus to a speedy absorption of the clot.

American Journal of Urology, New York.

October.

108 Antigonococcic Serum. C. Chassaignac, New Orleans.
109 Therapeutic Value of Medical Treatment in Vesical Hematuria. P. Ivaran, Montpellier, France.
110 *Hydronephrosis in Children and Its Treatment. O. Engles, Schleswig, Germany.
111 Genital Tuberculosis. F. Legueu, Paris, France.

110. **Hydronephrosis.**—Engler reports cases to show that children, even during the first few years of life, may undergo nephrectomy well, and that very good results are obtained when the operation is a primary one. He gives instances, both of traumatic and congenital nature.

Chicago Medical Recorder.

October.

112 The Tuberculosis Crusade. F. Tice, Chicago.
113 *Perforating Wounds of the Uterus Inflicted During the Course of Intrauterine Instrumentation. A. P. Heineck, Chicago.
114 Relief of Retention of Urine by Suprapubic Catheter. W. T. Belfield, Chicago.
115 Sudden Death that May Come to a Recently Delivered Mother. C. E. Hemingway, Oak Park, Ill.
116 Eye, Ear, Nose and Throat Work in Vienna. D. A. Vanderhoof, Rockford, Ill.
117 Pancreatic Insufficiency. J. Burke, Manitowoc, Wis.

113. Published in *Virginia Medical Semimonthly*, October 23, and in *Surgery, Gynecology and Obstetrics*, October, 1908.

West Virginia Medical Journal, Wheeling.

October.

118 Dyspnea and Cyanosis. L. D. Wilson, Wheeling.
119 Cataphoric Application of Electricity. C. S. Neiswanger, Chicago.
120 Diagnosis and Treatment of Acute Suppurative Peritonitis. R. E. Venning, Charlestown, W. Va.
121 Burns and Scalds. C. B. Williams, Philippi, W. Va.

The Journal of Ophthalmology and Oto-Laryngology, Chicago.

October.

122 Refractive Myopia. F. Valk, New York.
123 The Stapes in Relation to the Tympano-Mastoid Operation. A. H. Andrews, Chicago.

Yale Medical Journal, New Haven, Conn.

October.

124 *Old Age. J. M. Mosher, Albany, N. Y.
125 *Condition of Relaxation or Strain of the Sacroiliac Joint. P. P. Swett, Hartford, Conn.
126 Employment of the Lumière Process of Color Photography in Medicine. H. S. Arnold, New Haven.
127 Three Cases of Typhoid with Hemorrhagic Complications. H. S. Arnold, New Haven.
128 Deformities of the Neck. E. H. Arnold, New Haven.
129 Hypertrophic Pyloric Stenosis in an Infant; Operation and Recovery. I. W. Kingsbury, Hartford.
130 Early Diagnosis of Spinal and Cerebral Tabes. J. C. Lynch, Bridgeport.
131 Exact Diagnosis of Aural Brain Complications. D. Smith, Bridgeport.
132 Use of the Bronchoscope and Esophagoscope for Location and Removal of Foreign Bodies in the Air and Food Passages. H. L. Swain, New Haven.

124. **Old Age.**—Mosher states that there are substantial reasons for the belief that man's expectancy under ideal conditions should be much greater than the Psalmist's three score and ten. He discusses the three periods of growth, maturity, and decline, and describes individuality, as determined by maturity, as the reaction of the mind to the forces working on it from without, and as in part inherent, in part a concession to the environment. He contrasts the physical changes that accompany physiologic senility, the passing gradually out of life, mind and body fading slowly and with equal cadence, with the restlessness and irritability that accompany pathologic senility. He differentiates between lack of attention and loss of memory, which are so often confounded, the former being merely a failure of the mind to register new impressions, the latter an actual effacement of previously registered impressions. This latter implies organic brain destruction. The earliest mental impressions having naturally sunk deepest are longest retained, so that the pathognomonic symptom of senile involution, is the loss of memory of recent events with retention of the memories of the past. Successful management and care of the aged depends on recognition of this fact. Attempts to argue and to readjust the patient with his surroundings are futile, because the brain has lost its faculty of apprehension. It functionates automatically in the groove to which from long years of use it has become habituated. To the inability of the patient to harmonize his situation, and of his associates to adapt themselves to the material change which is taking place in his mind, may be attributed much of the restlessness and irritability manifested by the aged. When the facts are known and intelligent concessions are made, the chief obstacle to repose is removed, and much of the success in institutions to which these unfortunates are too often committed, may be ascribed to this conciliatory plan. Pathologic senility frequently begins with active mental symptoms of excitement or depression (mania, melancholia) and sometimes with violent delirium. Convulsions may also occur, and "senile epilepsy" is a well-recognized disease, in which explosions of nerve energy result from arterial degeneration. The value of treatment of senile mental disorders is too often underestimated. Disorders of assimilation and elimination may be corrected with surprising results; active mental disturbance subsides, irritability and restlessness are calmed, strength is restored, and the patient becomes comfortable and manageable. Careful study of the surroundings and of the aptitude and sympathy of the family suggests the advisability of instruction in the causes and effects of the disorder, and assists in the restoration of agreeable relations and quiet home life.

125. **Sprain of the Sacroiliac Joint.**—Swett discusses the anatomy and physiology, etiology, symptoms and objective signs, and treatment and draws the following practical conclusions:

1. Relaxation of the sacroiliac joints is a not infrequent condition, and must be considered in all patients in whom pain is located at the lower end of the spine.
2. It occurs most frequently after pregnancy, and proper treatment demands the use of binders about the pelvis after delivery.
3. As pelvic congestion of any kind increases, or even causes the condition, a rigid examination must be conducted in all gynecologic cases, for much of the pain in these cases is frequently due to the relaxed or strained joints.
4. Severe symptoms may result from chronic sprain without actual increased mobility, and these patients must be given the benefit of the doubt and proper retention apparatus applied.
5. Though the condition is most frequent in women during the child-bearing period, it is by no means rare in men, and often causes total disability.
6. Treatment by means of rest and support has so far proved the most efficacious.
7. Never make a diagnosis of lumbago or sciatica in the male or of pelvic disease or neurasthenia in the female, without first carefully examining the sacroiliac joints.

Vermont Medical Monthly, Burlington.

October.

133 Etiology and Diagnosis of Tuberculosis. A. Davidson, St. Albans.
134 Prophylaxis of Tuberculosis and Treatment of the Early Cases. W. F. Hamilton, Montreal.

International Clinics, Philadelphia.

Vol. III, Eighteenth Series.

135 Sciatica: Its Nature and Treatment. Sir D. Duckworth, London, Eng.
136 Treatment of Pertussis by Fluoroform. P. L. Tissier, Paris.
137 Two Cases of Tetanus Treated with Cholesterin, with Recovery. M. Almagia and G. Mendes, Rome.
138 Perforation of the Intestine in Typhoid. J. A. Scott, Philadelphia.
139 Value of Esophagoscopy from the Point of Diagnosis and Treatment. M. Guisez, Paris.
140 Nature of Hysteria and Treatment of a Case. T. A. Williams, Washington, D. C.
141 Cytologic Examination of a Case Diagnosticated Clinically As Malignant Disease of the Liver and Spleen. J. M. Swan, Philadelphia.
142 Melanotic Neoplasms. J. H. Gibbon and D. L. Despard, Philadelphia.
143 Modern Treatment of Fractures by Means of Direct Internal Splintage. E. M. Corner, London, England.
144 Adenoma of the Thyroid. G. P. Muller, Philadelphia.
145 Pericolic Inflammation. H. S. Clogg, London, England.
146 Disinfection of the Uterine Cavity in Puerperal Infection. A. Schwab, Paris.
147 Diarrheal Disorders of Infants. J. H. Knox, Baltimore, Md.
148 Chronic Milk Infection. (Marasmus.) R. B. Gilbert, Louisville, Ky.
149 Cleft Palate and Harelip. F. N. G. Starr, Toronto.
150 Myositis Ossificans Progressiva. W. Walker, Philadelphia.
151 On the Trail of the Subconscious. J. Jastrow, Madison, Wis.
152 General Paresis. S. E. Jelliffe, New York.
153 Estimation of So-called Functional Nervous Symptoms. G. L. Walton, Boston.
154 Diagnosis of Injuries of the Peripheral Nerves from Those of the Spinal Cord. J. Sherren, London, Eng.
155 An Unusual Case of Congenital Squint. W. C. Posey, Philadelphia.
156 Treatment of Traumatic Perforation of the Cornea. C. Delopé, Paris.
157 Leukemic Retinitis. A. Rochon-Duvigneaud, Paris.
158 Adenoid Vegetations in the Nasopharynx. J. M. Ray, Louisville, Ky.
159 Etiology of Appendicitis. R. Kretz, Prague, Bohemia.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London.

October 17.

1 *A Just Perspective in Medicine. Sir R. D. Powell.
2 *Blood Pressure in Man, Its Measurement and Regulation. Sir L. Brunton.
3 Two Cases of Multiple Rodent Ulcer. H. G. Adamson.
4 Treatment of Acute Appendicitis by the General Practitioner. J. Phillips.
5 Modern Methods for Clinical Examination of Urine and Gastric Juice by the General Practitioner. C. F. R. Wells.
6 A New Operating Table. E. W. H. Groves and E. H. E. Stack.

1. **Just Perspective in Medicine.**—Powell urges the necessity of a perception of matters under immediate scrutiny or contemplation in their due proportion to other associated matters and thoughts in the same field of view. He says: "I have heard it often complained that the discoveries of Harvey, of Jenner, of Darwin, of Pasteur, of Lister, and of Koch have

each in their turn been received with incredulity and hostile criticism. Surely this is more as it should be than if they had been met with an amiable and supine acquiescence. Hostile criticism is the best advertisement and controversy makes for education. It is right and desirable that each new phase of science in its bearing on the art of medicine should be subjected to the fire of criticism, to purify it and weld it into due relation with all other factors. Until it has passed through that ordeal it remains but of philosophic interest."

2. **Blood Pressure.**—Brunton discusses the history of attempts to measure the blood pressure and the various classes of instruments used for this purpose. He prefers the Riva Rocci's armlet with Potain's aneroid manometer. According to his observations the maximum pressure in children from 8 to 14 years of age is about 90 millimeters; below 8 he has no observations. From about 15 to 21 years of age it varies from 100 to 115 or 120; from 21 to 65 years from 120 or 125 up to 135 or 150; and above 65 years it may still remain at from 135 to 150 or about this pressure if the arteries are elastic, or it may go up to 180, 200, or even higher. In women the pressure, as a rule, is about 10 or 15 centimeters lower than the corresponding pressure in men. In strong athletic men the pressure is usually somewhat higher, about 10 or 15 mm., than in men of moderate physical development. The general symptoms accompanying diminished pressure are usually such as to indicate in no uncertain manner the necessity for tonic treatment—abundant food, gentle exercise, open air, sunshine and general and cardiac tonics. But in increased pressure there is frequently a sense of power and desire for action, which imparts a feeling of well-being and makes the patient scout the idea of the necessity for care. Sudden death is often preceded by a period in which the patient appears extraordinarily well. High tension is not only a direct cause of cardiac failure or ruptured vessels in itself; it also produces atheroma of the arteries, rendering them more liable to break. Brunton quotes the observations of Josué and G. R. Ricketts in support of the fact that the high tension is the cause of the atheroma. We do not yet know precisely what the substances are which tend to raise the arterial tension during advanced life. The indications of treatment in high tension are the limiting of proteid food, especially meat, and restricting the patient to bread, vegetables, fruit, buttermilk and fat bacon. Alcohol, tea, coffee and tobacco should be used sparingly, if at all, and if the tension is high should be prohibited. Little fluid should be taken with meals; plain water, hot water or mineral water may be taken freely about three hours after eating, as the food is passing from the stomach in the duodenum. Moderate exercise without strain is beneficial, but all strain, mental or physical, must be absolutely avoided. Steady mental work in moderation is good, but irritation and emotion are bad. Constipation must be avoided; mercurials have an especially beneficial action—½ or 1 grain (0.03 or 0.065) of calomel, or from 3 to 5 grains (0.20 to 0.32) of blue pill, or a combination of the two, may be given once or twice a week, followed by a saline in the morning. Potassium iodid, one to ten grains (0.065 to 0.65) given three times a day, is useful. Other remedies are ammonium and sodium hippurates, sodium benzoate, sodium nitrite, potassium nitrate, and potassium bicarbonate. When the heart begins to fail, with irregularity or intermission of pulse, giddiness, inability for exertion, shortness of breath, or edema of the ankles, cardiac tonics should be combined with vascular dilators, and rest, comparative or absolute, insisted on. Where flatulent distention in these cases causes much distress, Brunton finds the following mixture very useful:

B.		
Liquoris trinitrini .....03 to	18	m. ss—iij
Spiritus ammonii aromatici.....80 to 3	4	m. xv—3i
Spiritus ætheris compositi.....		or
Spiritus chloroformi, āā.....28 to	55 āā	m. v—x
Tincturæ cardamoni compositi.....55 to 1	7	m. x—xxx
Aquæ menthæ piperitæ .....ad 30		3j

This draught may be repeated every quarter of an hour till relief is obtained or until the trinitrin causes giddiness. Inhalations of amyl nitrite, chloroform, ethyl iodid or subcutaneous injections of morphin may be necessary.

British Medical Journal, London.

October 17.

7 *Antituberculosis Program: Coordination of Protective Measures. R. W. Philip.
8 *Use and Misuse of Iron Remedies. E. Smith.
9 Analogy Between Spontaneous Recoveries from Cancer and the Specific Immunity Induced by X-Ray Irradiations of the Lymphatic Glands Involved. H. D. McCulloch.
10 Future of the Ailing Poor-Law Child. A. D. Edwards.
11 Administration and Dose of Staphylococcus Vaccine. B. C. Kelly.
12 Flies as Carriers of the *Bacillus typhosus*. E. Klein.
13 *Splenic Enlargements Other than Leukemic. W. Osler.
14 *Fatty Acid Intoxication. L. Guthrie.
15 Fatty Acid Intoxication in Children. E. I. Spriggs.
16 *Prognosis of Infantile Convulsions. R. O. Moon.
17 Compensatory and Regenerative Changes in the Liver. F. C. Moore.
18 The Typhoid Carrier Problem, with Experiments on Immunity in Carriers. J. C. C. Ledingham.
19 Production of Immunity Against Dysentery Toxin. M. A. Ruffer and J. G. Willmore.
20 *Ocular Tuberculin Reaction. J. H. Sequeira.
21 Treatment of Skin Diseases by Electrolytic Medication (Ionic Methods). H. L. Jones.

7. Published in *Boston Medical and Surgical Journal*, Oct. 22, 1908; abstracted in THE JOURNAL, Nov. 7, 1908, p. 1639.

8. **Iron Remedies.**—Smith says that few remedies demand more accurate judgment as to the cases to which they are appropriate and the points of illness at which they may best be prescribed than the salts of iron. Not all anemias call for iron, nor all stages of the condition. In chlorosis it is often the emetic effect of iron sulphate that is of value. He relates the cases of two girls treated unavailingly with aloes and iron pills for months, who then went to an old woman who gave them a package of twelve powders, one to be taken every morning. Each powder made the patient violently sick, so that she brought up a quantity of tenacious mucus, and the stomach becoming cleaned out the health was re-established. Each powder was found to consist of twenty grains of iron sulphate. Smith has since treated many patients satisfactorily with twenty-grain (1.30) doses of zinc sulphate, taken fasting on successive mornings. In this class of cases iron as iron is no good. Irrigation of the stomach with a hot normal saline solution or compound senna mixture will produce the same effect as zinc sulphate. During convalescence or when the derangement has subsided after severe indigestion, the tongue being pale, indented, and silvery, the acid preparations of iron are especially indicated. Rickets and splenic anemia show improvement most quickly with acid preparations—ferrous chlorid or sulphate. In tuberculous bone or gland disease in children, Smith has obtained the best results from a mixture of the tincture of chlorid of iron, from 5 to 10 drops, with the pharmacopeial (B. P.) solution of the mercury perchlorid from 10 to 20 drops (0.60 to 1.20) taken perseveringly three times a day for months. In mucous disease, the best form is the tartrate (B. P.) or the ammoniocitrate, given with alkali in a bitter infusion. The strong preparations should be taken immediately after meals. Bitter infusions, e. g., calumba, frequently add to the value of the remedy, but if stale they may upset the stomach, the blame for which is usually placed on the iron. In every case of assumed incapacity to take iron the bitter should be omitted and the perchlorid given well diluted in aërated waters. The pernitrate in small doses, one to two minims (0.06 to 0.12) of the solution, is a safe and efficient remedy for children, in convalescence from chronic diarrhea. It has an invigorating effect on all mucous membranes, and is often useful in chronic bronchitis, menorrhagia and leucorrhea. The perchlorid has a diuretic action useful in albuminuria, especially at the end of acute Bright's disease, when the albumin is slow to disappear. Smith prefers Basham's mixture. In erysipelas he considers the value of the perchlorid greatly exaggerated, though it is doubtless useful in many cases. He concludes with the following general instructions: Any sign of irritability of the stomach is to be taken as an indication that the stronger preparations are to be avoided, and even the milder salts—the tartrate and the ammoniocitrate—should be prescribed timidly, and only in conjunction with an alkali, such as citrate of potash or the aromatic spirits of ammonia, in a freshly made bitter infusion. If the tongue be clean, or merely flabby and pale, showing indentations of the teeth at the sides, the stronger salts may be prescribed

with confidence, and the dose may often be pushed with advantage if aperients are given from time to time.

13. **Splenic Enlargements.**—Osler gives the following clinical grouping of splenic enlargement and discusses in detail the last six groups:

1. In children, disturbances of metabolism and in chronic intestinal infections: Rickets, amyloid disease, and in a large ill-defined group of intestinal disorders, particularly in the tropics; the pseudoleukemia infantum.
2. In the infections: Syphilis, malaria, kala-azar, and other forms of tropical splenomegaly, Hodgkin's disease and tuberculosis.
3. In primary disorders of the blood-forming organs: Leukemia, pernicious anemia, chlorosis, hemachromatosis; polycythemic splenomegaly.
4. In cirrhosis of the liver: Syphilitic, alcoholic, hypertrophic of Hanot.
5. Hereditary and family forms of splenomegaly: (a) With the congenital acholuric icterus: (b) with constitutional disturbances, dwarfing, etc.
6. New growths and parasites: Sarcoma, primitive endothelioma of Gaucher (?), echinococcus, and the schistosoma of Japan.
7. Splenomegaly not correlated with any of the above or with any known cause: Banti's disease, with its three stages of (a) simple enlargement, (b) splenomegaly with anemia, (c) splenomegaly with anemia, jaundice and ascites.

14. **Fatty Acid Intoxication.**—Guthrie distinguishes between fatty acid intoxication and acidosis and subacidosis. The symptoms attributed to fatty acid intoxication are chiefly incessant vomiting, sometimes hemorrhagic, constipation or diarrhea, intense thirst, epigastric pain and tenderness, sometimes jaundice; rapid emaciation and prostration, air hunger, restlessness, irritability alternating with apathy, delirium, ending in drowsiness, coma and death. The temperature as a rule is not high; it is seldom above 100 or 102 F., but sometimes in fatal cases there is hyperpyrexia and measly or urticarial or even purpuric rashes may appear. All the appearances of desperate illness are present from the first. Guthrie discusses the conditions in which acidosis or acid intoxication are met with, and sums up our knowledge on this point as follows: We may say without doubt that acidosis is present in diabetic coma, in postanesthetic toxemia, in acute yellow atrophy, in cyclical vomiting, and in a large variety of other morbid conditions, but we are not justified in concluding that fatalities in any such cases are due to fatty acid intoxication alone.

The following are his conclusions: Acidosis or fatty acid intoxication may occur in all cases in which the liver is excessively fatty. Acetone bodies being chiefly formed from fat, it is reasonable to suppose that their origin in these cases is in the liver and tissues. Although a normal liver is able to deal with enormous quantities of fat in its cells, a liver whose functions are deranged may not be able to do so. A liver may become superfatted as the result of: (a) Excessive supply of fats and (indirectly) of carbohydrates in diet. (b) Inability to metabolize fat supplied, or to make use of carbohydrates—glycogenic disorder—(? in cyclical vomiting). (c) Deprivation of carbohydrates (starvation). (d) As the result of sepsis, acute or chronic, or the action of specific organisms; for example, in gastrointestinal affections, or diphtheria or pneumonia. (e) As result of poisoning by phloridzin, hydrazin, phosphorus, chloroform. (f) The existence of a superfatted liver in itself is probably not dangerous, but it implies defective metabolism and oxidation as a rule. Should metabolism and oxidation be further perverted by the action of a general anesthetic, fatal toxemia, not attributable to fatty acid intoxication alone, but to a general breakdown of all hepatic functions—proteolytic, antitoxic, and glycogenic—may occur, and in extreme cases necrobiosis of the hepatic cells (acute atrophy) may result. (g) These results are not due to the specific action of chloroform alone, but may be the consequence of administering any general anesthetic in the presence of a fatty and disordered liver. At the same time chloroform in these conditions is the most dangerous anesthetic of all. (h) In cases of preceding hepatic inadequacy, the administration of any general anesthetic may prove the last straw. (i) Treatment by alkalies or carbohydrates affords but slender hope of cure in postanesthetic intoxication. (j) Prophylaxis. Subjects of cyclical vomiting, perhaps those especially who live chiefly on fat and carbohydrates, are potential victims to postanesthetic intoxication. The danger is probably least toward the end, and greatest on the eve, of an attack of periodic vomiting. Anesthetics may be dangerous in cases of acute and chronic sepsis, whether due to specific organisms or to intestinal saprophytes. All these conditions are likely to be associated with fatty liver and consequent acidosis, with possible inadequacy of hepatic function in general. It is extremely doubtful if fatty acid intoxication is ever the sole cause of death. Whenever there is reason to suspect the existence of fatty liver and possible hepatic inadequacy to deal with fat and carbohydrates, ether with oxygen would perhaps be the least dangerous form of anesthetic to use.

16. **Infantile Convulsions.**—Moon considers that an infantile convulsion is not a mere isolated phenomenon. It is rather an outward and visible expression of some disturbance taking place in the higher levels of the brain which at times may be sufficiently great to give vent to this gross expression of itself; at other times it may manifest itself in minor fashions, such as enuresis, night terrors, violent outbursts of wrath, hallucinations, etc., the significance of which is unperceived.

20. **Ocular Tuberculin Reaction.**—Sequiera sums up the result of his observations strongly in favor of the reliability of this test for cutaneous tuberculosis. In his experience every clinically tuberculous case has reacted and a negative reaction indicates that the cutaneous lesion is not tuberculous.

Medical Press and Circular, London.

October 14.

22 Displacements of the Pelvic Organs. A. E. Giles.
23 Exophthalmic Goiter. W. B. Warrington.
24 Relation of Alcohol to Feeblemindedness. W. A. Potts.
25 *Three Signs for Diagnosis of Erysipelas. G. Millian.

25. **Erysipelas.**—Milian discusses three objective clinical signs of erysipelas which he asserts to be absolutely constant and pathognomonic. We summarize as follows:

1. The sign of centrifugal maximum. The most marked lesions are always situated at a spot at some distance from the starting point on the periphery of the patch, so also are the swelling and pain on pressure. This sign is useful in distinguishing erysipelas from inflammatory troubles, dacryocystitis, dental abscess, parotiditis or mumps.
2. The ear sign. Owing to the close adherence of the dermis and perichondrium, and the absence of subcutaneous tissue in the ear, inflammatory processes stop short at the periphery, whereas erysipelas, being a dermatitis, spreads in the thickness of the skin itself, invading that of the ear as it does in any other part.
3. The pain sign. The erysipelatous patch is invariably exceedingly painful. The patient invariably makes a grimace and shrinks when it is pressed, whereas in acute eczema and ophthalmic zona, the parts are not so tender on pressure. In dental abscess and dacryocystitis, however, the affections are both painful and tender, but in a different way.

Clinical Journal, London.

October 14.

26 Association of Jaundice and Enlarged Spleen, and Splenogenic Jaundice. H. D. Rolleston.
27 Modern Treatment of Fractures by Direct Internal Splintage. E. M. Corner.

Practitioner, London.

October.

28 Preoperative Treatment of Non-Malignant Gastric Disease. A. E. Barker.
29 *Fracture and Refracture of the Patella, with Treatment. E. M. Corner.
30 Fracture of the Metacarpal Bones. J. A. MacKenzie.
31 *Necessity for End-to-End Apposition in Fractures of Long Bone. H. T. Gray.
32 *Color Vision and Its Relation to Other Senses. G. A. Stephens.
33 Venereal Diseases. J. E. Lane.
34 Recent Neurologic Literature. W. Harris.
35 The Theory and Employment of Bier's Treatment by Passive Congestion in Rheumatoid Arthritis, Tuberculosis, Sepsis and Various Other Conditions. A. W. Wakefield.
36 The General Practitioner and Deaf Mutism. D. M. MacKay.

29. **Fracture of the Patella.**—Corner makes a careful study of fractures about and below the center of the patella and of refracture of the patella, and gives statistics of cases of fracture of the patella, admitted to St. Thomas' Hospital, London, from 1890 to 1907, inclusive, and also statistics of cases of refracture. He discusses treatment and says that the study of the results of suturing fracture of the patella have demonstrated the following points:

1. Internal splints lead to absorption of the hard substance of the bone round them.
2. This leads to the loosening of the internal splint, and therefore more easily to its breaking with a sudden effort; and to some separation of the fragments.
3. With the early practice of massage and movements, the fragments are still further separated, and the union between them is fibrous, not bony.
4. A perfectly functional limb is obtained with such a fibrous union. Bony union is unnecessary to an excellent result.

5. Limitation of movement, after the fracture, is caused by the adhesion or cicatricial contraction of the attachments of the patella to the femur, putting the quadriceps femoris at a mechanical disadvantage.

6. The advantage of direct and internal splintage, suture of the fragments, lies in its allowing movements of the joint to be begun early, preventing any limitation to the movements of the patella on the femur.

7. From the point of view of the subsequent value of the limb, it makes little or no difference whether the union between the fragments is fibrous or bony, provided that the patella moves freely on the femur.

8. The nature of the internal splint used is a matter of indifference; it may be silver wire, copper wire, iron wire or silk. An absorbable suture is not a good internal splint, because its presence will be required for some weeks at least.

9. A wire is always loosened, even if bony union takes place between the fragments.

10. It is not clear that it is better to use two wires than one.

11. Treatment after operation must be directed to getting a movable knee joint and a patella freely movable on the femur.

12. For success, the operation area must not suppurate.

13. If operation is to be undertaken, it should be done as soon after the accident as is convenient, and before any reparative inflammation has stiffened the torn structures and increased the difficulty in bringing the fragments together and in moving the joints afterward. Union by first intention can then be obtained between the fragments.

31. End-to-End Apposition in Fractures of Long Bones.—Gray quotes the statement of Robert Jones (*Lancet*, March 21, 1908) that "end-to-end apposition is not necessary to the perfect function of a limb," and that "disability is often due to injury of soft parts and can not be even remotely affected by the closest and most perfect opposition." Gray is convinced that statistical inquiry in a large series of cases would refute these statements. He discusses the question at length and says in conclusion that a useful limb may result from conservative measures, after a lapse of months or possibly years, in some cases (depending on the severity of the injury), when the ends are not in apposition. This result may be brought about by careful attention, after accurate diagnosis, combined with a considerable proportion of good fortune. That a functionally perfect limb is likely to be obtained under such conditions, even with the lapse of years (especially in the lower limb), experience compels him emphatically to deny.

32. Color Vision.—Stephens quotes the words of Professor Steinheil, in 1838, as follows: "Had we the means which could stand in the same relation to electricity that the eye stands to light, nothing would prevent our telegraphing through the earth without conducting wires." By the aid of a "coherer," which he describes, Stephens points out that we can now telegraph without wires, and adds that our knowledge of this instrument helps us more thoroughly to understand the method by which the eye conveys to the brain the impressions of sight. In the course of his experiments, which he describes, Stephens found that if he caused a photographic plate to be vibrated by sound, it became much more sensitive to light, and a photograph could be taken by such means in a fairly dark room. He has shown by the galvanometric change that sensitiveness to light is accompanied by a current. Anything that tends to increase such a sensitiveness must do it by producing either a current, or, what is practically the same, greater conductivity. Hence, one is driven to the conclusion that sound, light and the Herzian waves all produce their effects by increasing conductivity, by a rearrangement of minute particles. In the case of the retina, however, the light falls on living active particles which move in response, and which, by virtue of their own vitality (in contrast to the photographic film), as quickly resume their rest in position. The dead particles of the film move in the same way, whether stimulated by violet, yellow or red rays, but the living particles of the retina move differently for each color, for violet quickly and in one direction, for red slowly and in another direction. Each particular movement, however, is accompanied by an increased conductivity, resulting in the completion of the cerebral circuit, and an intelligent appreciation of the original stimulus. Among such vital particles there must be much variety of activities, and it is in consequence of such variety that we find the different responses in different persons to color sensations. In regard to hearing, Stephens suggests that such a rearrangement with altered conductivity takes place in the case of the living cells of the auditory organ when acted on by sound vibrations. The dead particles of a vibrating plate can convey but one or two changes, whereas the living cells of the organ of Corti, in consequence of their vitality, can participate in a large number of movements, sufficient in their permutations and combinations to account for their response to all the audible vibrations. He applies similar reasoning to the senses of taste and smell, and says in conclusion: "Light, heat and sound are all forms of motion, and, as such, are all mutually interchangeable; and the theory advanced here is one in which the response in the different sense organs is held to be but an example of that mutual interchange. This interchange may account for certain sound vibrations causing movements of the retinal cells, and being the means whereby certain sounds in some persons are associated with certain colors. Such a 'perversion' of movement may possibly be found to be associated both with optical delusions (sic), and also with mental delusions."

Indian Medical Gasette, Calcutta.

September.

37 Liver Abscess. D. G. Crawford.
38 *Outbreak of Epidemic Dropsy in the Lunatic Asylum, Dacca. R. N. Campbell.
39 Retroperitoneal Lipoma Successfully Operated On. W. J. Wanless.
40 Rat Destruction in Kamptee. M. F. Reaney and G. E. Malcomson.
41 Preparation of Whey. J. R. Williamson.
42 Abscess of the Spleen. R. B. Bakshi.

38. Epidemic Dropsy.—Campbell discusses an epidemic of dropsy that occurred in the lunatic asylum at Dacca, India, in March, 1908. The number of cases was 155. The epidemic was preceded by an outbreak of diarrhea, accompanied by fever, in 62 cases. Dropsy affected mainly the lower extremities; rash was present in only 3 patients. There was also derangement of the digestive and circulatory systems; there was nothing abnormal in the urinary system, and apparently no marked nervous disturbances. Cardiac weakness remained for a long time afterward. The prognosis is favorable. The treatment consists of absolute rest, good and nourishing diet, calcium chlorid with a cardiac and hematic tonic of iron, dilute phosphoric acid, tincture of digitalis, and liquor strychninæ (B. P.). As to its causation, he discusses the possibilities of a prevailing antecedent wasting in disease, air convection and water convection, site infection, communicability and communication through an intermediate host, and negatives all these. He then takes up food poisoning and excludes milk. Dal oil and fish are possible but improbable sources. He regards rice as probably the cause, believing that rice from improper storage develops a mould or fungus or rust, which, when taken, acts as an intestinal irritant or poison, which affects the sympathetic nervous system, hence the dilatation of the heart and the leucocytosis and the oil globules in the stools. This fungus has an action allied to ergot, but exactly the opposite. It may also resemble muscarin slightly. The conclusion he comes to is that it may be due to a ptomain poison or bacillus in the fish, but is much more likely to come from a rust or fungus growth on the rice, which has a special effect on the sympathetic nervous system. The disease is certainly not communicable from man to man or by an intermediate host.

Annales de Dermatologie et de Syphiligraphie, Paris.

August-September, IX, Nos. 8-9, pp. 565-643.

43 Epididymitis, Orchitis and Vaginalitis from Sporotrichum beurmanni. (Etude des sporotrichoses internes.) De Beurmann, Gougerot and Vaucher.
44 The Syndrome of Pellagra. J. Nicolas and A. Jambon. Commenced in No. 7.
45 Significance of forms of Non-Acid-Fast Tubercle Bacilli in Relation to Bacillus of Leprosy. (Signification des formes non acido-résistantes du bacille tuberculeux. Leurs rapports avec le bacille de la lèpre.) W. J. Terebinsky.
46 Syphiloma of the Uvea. (Etude d' un œil atrophié par syphilome uvéal.) J. P. Tournex.

Annales de l'Institut Pasteur, Paris.

September, XXII, No. 9, 689-751.

47 *Vaccination of Cattle Against Tuberculosis. (Vaccination des bovidés contre la tuberculose.) A. Calmette and C. Guerin.
48 Acetic Aldehyd in Wine. Its Origin and Effects. (L'aldéhyde acétique dans le vin.) A. Trillat.
49 Zinc in Plants. M. Javillier.
50 Fixation of Complement. (Mécanisme de la réaction Bordet-Gengou.) M. Crendiropoulo.

47. Abstracted in THE JOURNAL, Oct. 24, 1908, page 1446.

Archives Générales de Chirurgie, Paris.

September, 11, No. 9, pp. 225-314.

51 Spontaneous Torsion of Normal Testicle. (Bistournage spontané d' un testicule non ectopique.) M. Chevassu.
52 *Ablation in One Piece of Epithelioma of the Penis and Its Lymphatic Territory. (Ablation en bloc de l'epithélioma pénien.) Mauclaire.

52. **Extensive Ablation of Epithelioma of Penis.**—Mauclaire found that the epithelioma had developed on the basis of a wart in one of his four cases and on phimosis in two others. The literature—which he reviews very fully—also indicates that the cancer is liable to develop on a wart, leucoplakia, or phimosis in a large proportion of cases. Infection of the lymph nodes is variable in its occurrence and spread, but cancerous degeneration may be observed in the iliac and inguinal glands when the primary cancer is first recognized. It is important, therefore, to remove the connected lymphatics on both sides throughout the inguinal and crural regions, taking out the whole in one block. The chances for complete cure are thus enhanced and the danger of disseminating cancer germs reduced. Two of his patients are still in good health; another succumbed to the progress of the cancer cachexia, and the fourth died of a brain affection two years after the operation. He gives an illustrated description of the technic he followed.

Archives des Maladies du Cœur, Paris.

September, 1, No. 9, pp. 505-552.

53 *Arterial Pressure in Tabes and Its Modification Under Influence of Gastric Crises and Lightning Pains. J. Heitz and M. Norero.
54 *Pathologic Anatomy of Hemophilia. C. Esmein.

53. **Arterial Pressure in Tabes.**—Heitz and Norero report research in eight cases of tabes with more or less ataxia undertaken to determine the modifications in the arterial pressure under the influence of gastric crises and lightning pains. During the gastric crisis there is generally a vasoconstricting spasm, except in advanced cases, in which the reflex phenomena are less active. The peripheral lightning pains seem to determine hypertension. Inhalation of amyl nitrite is liable to relieve the pains at once, both abdominal and peripheral. This relief may be transient, but it is liable to prove permanent even after the blood pressure has returned to its normal level. Daily injections of 4 cg. sodium nitrite, even kept up for a long time, do not seem usually to have any effect on the pain or hypertension. The pulse is accelerated during the gastric crises, contrary to the condition observed in lead poisoning or gallstones. The experiences related seem to show that the cardiovascular system does not suffer from the repetition of the tabetic pains as much as one would suppose.

54. **Pathologic Anatomy of Hemophilia.**—Esmein found at autopsy of a hemophilic 16 necrotic lesions in the liver causing destruction of the lower part of the liver. This change had undergone an acute exacerbation, which proved fatal. The case was evidently one of acquired hemophilia, as there was no family history of such an affection, and the symptoms had been observed only for one year, in a previously healthy youth. The findings in the liver were exactly the same as those observed in animals in intoxication with chloroform or phosphorated oil. A similar hemorrhagic tendency has been reported in scarlet fever and typhoid, diphtheria and appendicitis, traceable to the same centro-lobular degeneration of the liver, and the case described differs from these only by the absence of a precise etiology to which the lesion in the liver can be attributed.

Bulletin de l'Académie de Médecine, Paris.

October 6, LXXII, No. 31, pp. 365-380.

55 Treatment of Recurring Pleural Effusions with Injections of Air. (Traitement des épanchements pleuraux récidivants par les injections gazeuses stérilisées.) A. Netter.
56 *False Heart Disease and Functional Cardiopathies. (Les fausses maladies du cœur et les cardiopathies fonctionnelles dans leurs rapports avec le service militaire.) H. Huchard.
57 *New Research on Serotherapy of Nephritis. J. Teissier.

56. Abstracted in Paris letter, October 30, page 1523.

57. **Serotherapy of Nephritis.**—The method followed by Teissier is the subcutaneous injection of blood serum from the renal vein of the goat. It is based on the research of Vitzou of Bucharest and on Turbure's clinical experience. The latter in 1896 reported a remarkable case of chronic nephritis, with tendency to uremic convulsions, in which essential improvement was obtained by six injections of 15 c.c. of defibrinated blood from the renal vein of the dog. The principle is different from that of organotherapy such as Dieulafoy, H. Frenkel and Renaut have used in kidney disease. The serotherapy is based on the assumption that the venous blood issuing from a glandular organ must contain the internal secretion of the organ in especially large proportions. Injected into a nephritic, an unmistakable tonic effect is observed, dyspnea is reduced and the amount of albumin in the urine rapidly declines, while the urine becomes very much less toxic. Teissier has applied this method of treatment in seven cases of nephritis during the past year, and the results observed have been encouraging. It is harmless, he asserts, and is indicated in every case of acute or chronic nephritis accompanied with symptoms of autointoxication. The best results may be anticipated when the autotoxic disturbances are more of a passing storm from exacerbation of a chronic lesion or during an acute nephritis. He ascribes the efficacy to the action of the internal secretion on the other glands, especially on the liver, and on the emunctories in general. In obtaining the blood from the goat he warns that it is necessary to throw a ligature around the renal vein just below its junction with the vena cava. He made two or three injections of from 10 to 20 c.c. of the serum in each case, and reports three of the cases in detail. One of the patients was a boy of 11, one was a woman of 47, and one a man of 70. In the last case malaria, arteriosclerosis and aortitis aggravated a sclerous nephritis which had entered a menacing phase, with dyspnea, absolute insomnia, delirium and Cheyne-Stokes breathing. Fifteen c.c. of the serum were injected and improvement was soon manifest. By the second day the Cheyne-Stokes type of breathing had become transformed and the albumin had dropped to one-third of the previous percentage. A second injection the third day accentuated the improvement, and in less than three weeks the patient was up and attending to business.

Presse Médicale, Paris.

October 3, XVI, No. 80, pp. 633-640.

58 Chronic Tuberculous Endocarditis with Tubercle Bacilli. L. Lortat-Jacob and G. Sabareanu.

October 7, No. 81, pp. 641-648.

59 Operative Technic in Craniectomy. T. de Martel.

October 10, No. 82, pp. 649-656.

60 Treatment of Congenital Luxation of the Hip Joint. M. Ducroquet.

Semaine Médicale, Paris.

October 7, XXII, No. 41, pp. 481-492.

61 *What the First International Urologic Congress Has Accomplished. (L'œuvre du premier Congrès International d'Urologie.) C. Achard.

October 15, No. 42, pp. 493-504.

62 Formation of Placenta. (La placentation de la femme.) R. de Bovis.

61. See THE JOURNAL, October 31, page 1553.

Berliner klinische Wochenschrift.

October 5, XLV, No. 40, pp. 1793-1832.

63 *Pathogenesis of Eclampsia. L. Mohr and R. Freund.
64 *Causal Germ of Scarlet Fever. (Scharlacherreger.) N. T. Gamaleia.
65 Determination of Antigens and Antibody in Blood in Typhoid. (Nachweis der Antigene und des Gegenkörpers im Blute von Typhuskranken.) L. Zupnik and W. Spät.
66 Specific Neurotoxins. M. Goldbaum.
67 *Atrophy of Kidney with Fistula in Ureter. (Nierenatrophie bei Ureterfistel.) R. Asch.
68 Virulence-Enhancing Property of Bile in Typhoid and Colon Bacilli Infections. (Virulenzerhöhende, aggressinartige Eigenschaft der Galle bei Infektion mit Typhus- and Colikulturen.) E. Schlesinger.
69 Quality or Quantity in Progress of Civilization? K. Bornstein.
70 Experimental Absorption of Tubercle Bacilli from Digestive Tract in Java. (Resorptionsinfektion mit Tuberkelbacillen vom Magendarmkanal aus beim Karbau.) J. de Haan.
71 Oxalic Acid Poisoning. (Oxalsäurevergiftung.) B. Winogradow.
72 Simplication of Esophagoscopy. (Vereinfachung der Technik der Oesophagoskopie.) P. Rewidzoff.

63. Pathogenesis of Eclampsia.—Mohr and Freund have succeeded in isolating a specific toxin from the placenta, and they thus obtain an important support for the theory which ascribes eclampsia to intoxication from the placenta. This specific toxin is the same as that which Tallquist isolated from the body of the tapeworm and from the intestinal mucosa—merely oleic acid or sodium oleate. This normally occurring, apparently innocent substance is thus able to acquire toxic properties under certain conditions, especially a hemolytic property. They think that their demonstration of a hemolysin of definite chemical constitution in the placenta throws much light on the normal and pathologic conditions of pregnancy. The oleate from the tapeworm causes pernicious anemia when injected into animals. It is possible that even in normal conditions the maternal red corpuscles are naturally destroyed by this hemolysin to supply the fetus with iron.

64. Causal Germ of Scarlet Fever.—Gamaleia ascribes the scarlatinal infection to a germ resembling a forget-me-not blossom. The germs show up well with vital staining with neutral red. He found his parasite in the skin, throat, blood, spleen and kidney. Some of its forms correspond to Mallory's rosetta formations and Prowazek's parasites. He calls it the *Synanthozoon scarlatinæ*.

67. Atrophy of Kidney with Fistula in Ureter.—In several cases of fistula in the ureter, Asch has found that the connected kidney has gradually ceased functioning, its mate assuming the entire task of urine production. Others have assumed from the healing of the fistula that the ureter had become permeable, but his cases show that the healing was merely the natural result of complete atrophy of the kidney. In one case the fistula persisted and the patient insisted on having the kidney removed. It was found completely atrophied. He warns that in a case of a fistula in the ureter, if there is pyelitis in the connected kidney, the implantation of the ureter in the bladder is dangerous, as the infection is liable to cause cystitis and possibly to spread to the sound kidney. When a long time has elapsed and the implantation of the ureter in the bladder has been deferred on account of cystitis or for other reasons, it is wise to see whether the fistula will not heal spontaneously in consequence of the atrophy of its kidney. The sound kidney gradually assumes the entire task of secretion.

Deutsche medizinische Wochenschrift, Berlin.

October 8, XXXIV, No. 41, pp. 1753-1792.

73 *Whooping Cough. (Behandlung des Keuchhustens.) E. Feer.
74 Movable Cecum as Cause of Disturbances Ascribed to Chronic Appendicitis. (Das Coecum mobile als Ursache mancher Fälle von sogenannter chronischer Appendicitis.) Wilms.
75 Conditions After Lightning Treatment of Cancer. (Klinische Beobachtungen nach Fulgurationsbehandlung maligner Tumoren.) K. Schultze.
76 Practical Value of Serum Test for Syphilis. (Serodiagnostik bei Syphilis.) R. Ledermann.
77 *Two Cases of Typhus at Göttingen. (Eine kleine Epidemie von Fleckfieber.) F. Port.
78 Importance of Roentgen Rays in Rhinology. M. Scheier.
79 Late Asphyxia After Total Ablation of Larynx. (Spätasphyxie nach totaler Kehlkopfexstirpation.) W. Mintz.

73. Whooping Cough.—Feer declares that the treatment of whooping cough is still a difficult matter, and that there is as yet no specific remedy, but that it is possible by dietetic measures and hydrotherapy with quinin and sedatives to influence the affection favorably. He cites statistics which show that in Prussia in 1892 8,400 infants under one year succumbed to whooping cough; 3,000 to measles; 5,700 to diphtheria and 740 to scarlet fever. Between the ages of 1 and 4 years the figures were, respectively, 4,200, 5,100, 12,900 and 2,000. Between 4 and 6 the proportions were reversed, the figures being 730, 1,250, 10,000 and 1,500. The fatalities from whooping cough are seen to be much more numerous among infants, and he consequently urges the greatest care in keeping children suspected of infection with whooping cough from day nurseries, kindergartens, etc. His experience has shown that the disease is acquired only by direct contact, and that the condition is much more virulent during the early catarrhal stage. A frequent source of infection is in the specific pertussis of adults, which runs a typical course without the spasmodic cough, and consequently is not recognized. The sick should be isolated and kept away from children until the cough has disappeared, but the other children in the family may escape infection if the sick are kept in separate rooms from the other children, even if waited on by the same person. All that is necessary is that the attendant should wash her hands and wear a sleeved apron in the sick room. The trouble is usually that the "healthy brothers and sisters" are already infected before the pertussis is recognized. For this reason they should never be sent away into other families or into the country until they have remained free from catarrh and cough for ten or fourteen days. The germ is so vulnerable that disinfection of the rooms is not necessary. It is a great gain if children can be protected from whooping cough until they are at least three years old. Every child with catarrh of the air passages during the prevalence of pertussis should be treated as suspicious and be kept away from small children. The psychic element is of great importance in the disease, and children with a tendency to convulsions have it more severely. Fresh air and freedom from dust are indispensable in management of a case, as well as correct psychic treatment. Older children can sometimes suppress an oncoming attack of coughing by deep breathing. He regards quinin as useful in the first stage, with bromoform if a sedative is required, or codein with very severe and frequent attacks. Somnolency and subsidence of expectoration contraindicate sedatives and demand energetic stimulants.

77. Typhus.—Port relates the history of four cases of typhus imported from Russia. The patients all recovered under Curschmann's method of unlimited fresh air: the windows were kept open night and day and the large room was well heated. He ascribes the absence of contagion of others to this abundance of fresh air. No other measures were required, not even the dietetic restrictions of typhoid.

Medizinische Klinik, Berlin.

October 4, IV, No. 40, pp. 1521-1558.

80 *Pathology and Treatment of Pyelitis. L. Casper.
81 Diagnosis and Therapy in Laryngology without Specialist Training. J. Weleminsky.
82 Differential Diagnosis Between Appendicitis and Gynecologic Affections. (Appendizitis und weibliche Genitalerkrankungen.) Pankow.
83 Technic for Intraspinal Administration of Antimeningococcus Serum. (Technik der intralumbalen Anwendung des Meningokokkenheilserums—Kolle-Wassermann.) E. Levy.
84 Ovariotomy During Delivery. (Ovariotomie während der Geburt.) K. Hartmann.
85 *Infection of Eczematous Child from Vaccinated Brother. (Infektion eines Kindes mit generalisierter Vakzine, übertragen von den normalen Impfpusteln des Bruders.) E. Kobrak.
86 *Endobacillary Albuminoids and Serum Treatment of Tuberculosis. (Endobazilläre Eiweiskörper.) G. Deycke and H. Much.

80. Pyelitis.—Casper reports four cases of pyelitis as types. In the first case a puerpera presented signs of septic infection, and the urine from both ureters contained pus and staphylococci. The process seemed to be most pronounced in the right kidney, and as the patient was in a threatening condition the right kidney was exposed and incised. No circumscribed focus could be detected in the kidney, but fever and chills subsided at once after the operation, and the patient entered on convalescence. The infection in the second case had evidently proceeded from an old parametritic exudate which occasionally had given trouble. The right kidney became tumefied, and chills and fever came on every evening; streptococci were numerous in the urine sediment. On a diagnosis of infectious pyelitis the patient was ordered to drink ten liters of fluid a day, in the form of tea, milk, mineral waters, lemonade and soups, and hexamethylenamin (urotropin) was given in large doses, up to 3 gm. (45 grains) a day. Under this flushing out of the system the infectious disturbances promptly subsided. In the third case the pyelitis was bilateral and the urine from both ureters contained various cocci and bacteria. The kidney functioning was persistently good. After failure of the copious drinking and administration of hexamethylenamin, he rinsed out the pelvis of each kidney with a 1 to 1,000 solution of silver nitrate, gradually increasing the strength to 1 to 400. This local treatment was done four times, and the urine rapidly cleared up and the general health improved. In the fourth case he applied the same local treatment to an old,

left, chronic gonorrheal pyelitis. The pelvis was rinsed out twice a week with the solution of silver nitrate—six times in all, and the bladder twice a week. In a fifth case a right colon bacillus pyelitis developed after a gonorrheal process. Gonorrheal processes frequently pave the way for other infectious processes in the kidneys. In the last three cases the pyelitis came on insidiously, without fever, while in the first three the onset was sudden and stormy. As regards prognosis, Casper mentions that he has known persons keep well and strong, notwithstanding the persistence of pyelitis, for many years. Even if the affected kidney succumbs to the inroads of the inflammation the other kidney generally develops compensating hypertrophy. In treatment he tries to have the patient ingest a pint of some beverage every hour; then, if symptoms continue, he applies the topical silver nitrate measures.

85. **Accidental Infection of Eczematous Child with Vaccine.**—Kobrak warns that it is not only necessary to refrain from vaccinating a child with severe eczema, but also to refrain from vaccinating those in contact with the child. He recently found a child with extremely severe vaccinia superposed on old, extensive eczema, sleeping in a separate bed, but in the same room with a brother who had been vaccinated a week before and whose pustule was running the normal course. No less than seven died of the twenty-one children with eczema plus vaccination, whose cases have been published, and in three cases the children became blind.

86. **Endobacillary Albuminoids.**—Deycke and Much found that tubercle bacilli cultivated on an emulsion of brain tissue lost their acid-fast properties, and, further, that this change was the work of the lecithin in the brain tissue. Bassenge has recently shown that it is possible to extract a very toxic substance from the bodies of bacteria, with the aid of lecithin, but in the present research the technic caused the binding of the toxin rather than any production of toxin. Addition of 0.04 gm. of moist bacillus substance to 1 c.c. of a lecithin emulsion resulted in the complete loss of the acid-fast properties in a few days. The tuberculin thus prepared (Tb-L) and another made by the action of alkylamin (Tb-A), which leaves a pure albuminoid, were used in the clinic after much experimental work, and it was found that remarkable benefit was obtained in certain cases, especially in surgical tuberculous processes. It is possible by this means to inject unusually large amounts of the bacterial substance without harm. An interesting feature of the research reported is the divergent results obtained with human and with bovine tubercle bacilli, although using with both the identical technic.

Münchener medizinische Wochenschrift.

October 6, LV, No. 40, pp. 2073-2120.

87 *Results of Operative Treatment of Gallstones. (Welche Erfolge hat bisher das Messer des Chirurgen bei der Behandlung der Cholelithiasis erzielt?) H. Kehr.
88 Changes in Size of Heart in Infectious Diseases. (Orthodiagraphische Beobachtungen über Veränderungen der Herzgrösse bei Infektionskrankheiten, bei exsudativer Perikarditis und paroxysmaler Tachykardie, nebst Bemerkungen über das röntgenologische Verhalten der Pneumonie.) H. Dietlen.
89 Römer's Pneumococcus Serum in Croupous Pneumonia. (Wirkung des Römerschen Pneumokokkenserums bei der kruppösen Pneumonie mit besonderer Berücksichtigung der Leukozyten.) May.
90 Mishaps with Spinal Anesthesia. (Zwischenfälle bei der Lumbalanästhesie.) A. Hörrmann.
91 Brief Pneumonia (Ephemere Pneumonien.) F. Engels, Id. R. Pollatschek.
92 Dosage of Roentgen Rays. (Ein offenes photographisches Dosimeter für die Röntgentherapie.) A. Strauss.
93 Collapsible Cartridge Method for Subcutaneous Injections. (Neue Methode der subkutanen Serum, etc. Injektionen.) K. Krautschneider.
94 Vaginal Cesarean Section in Private Practice. (Der vaginale Kaiserschnitt in der Praxis.) A. Dührssen.

87. **Results of Surgical Treatment of Gallstones.**—Kehr has now a record of 1,382 gallstone operations, and has investigated the after-history of most of the patients. He found that 84 per cent. were entirely cured by the operation; in the last 500 fully 90 per cent. The proportion of cases in which he overlooked stones has declined from 4 to 1.5 per cent. Recurrence of stones after removal of the gall bladder has never been observed, and he advocates this as the routine method of treatment, combined with drainage of the hepatic duct if needed. He urges physicians to refer patients for operating at the proper moment; not an early operation, but an operation at the right time is what is needed. If only empyema and chronic occlusion of the common bile duct are referred for operation—and these formed 70 per cent. of all his operations—the surgeons will be contented. Further research is required for closer diagnosis and for a better study of the complicating infections; he thinks that the operative technic is nearly perfected.

Therapeutische Monatshefte, Berlin.

October, XXII, No. 10, 493-548.

95 *Cancer Research. (Zur Krebsfrage.) H. Naegeli-Akerblom and Vernier.
96 *Decapsulation of Kidneys in Bright's Disease. (Dekapsulation der Nieren wegen Morbus Brightii.) J. Lipburger.
97 Campaign Against Disease-Transmitting Insects. (Bekämpfung und Tilgung der als Krankheitsüberträger in Betracht kommenden Insekten.) L. Sofer.

95. **The Cancer Question.**—In the course of these remarks on the result of recent cancer research, the authors express surprise that greater attention is not paid to the method of Cerny and Truneeek of Prague, who have reported most excellent results in the cure of epithelial cancer from local application of an aqueous-alcohol solution of arsenious acid, as mentioned in The Journal at the time. The surface is painted with this, and the application is repeated as the scabs drop off. A demarcation inflammation develops at the junction of the sound skin, in consequence of which the neoplasm is cast off like a foreign body. Reverdin has confirmed the efficacy of this treatment, reporting two cases. One patient was a woman over 90 with an inoperable epithelioma of the ear, with foci of melanoma; under the arsenious acid treatment the tumor vanished and the pigmented patches became white. In the second case a pedunculated tumor on a melanotic patch in the cheek retrogressed until the growth was removable and the cure has been permanent for over two years. The authors also call attention to Leduc's statement that the zinc ions act much more effectually and rapidly on epithelioma of the face than the Roentgen rays. They also review the publications to date on the differential diagnosis of neoplasms in the kidney and warn that in the presence of an enlarged thyroid of possibly syphilitic nature, no potassium iodid should be given—only mercury—as experience has shown that potassium iodid is liable to cause exacerbation of a benign thyroid tumor and favor malignant degeneration. In conclusion they remark that the ultramicroscope and inoculation of animals have failed to confirm the etiologic importance of Doyen's micrococcus, yeasts or coccidia.

96. **Decapsulation of Kidney in Treatment of Bright's Disease.**—Lipburger adds another to the cases on record in which decapsulation has been done for nephritis. He operated on both kidneys. The patient was a painter of 30, with occasional lead colics, addicted to liquor. The improvement was so marked, especially the improvement in vision, that Lipburger is encouraged to try this intervention again on the first opportunity.

Therapie der Gegenwart, Berlin.

October, XLIX, No. 10, pp. 433-480.

98 *Modern Heart Tonics. (Moderne Herzmittel.) W. His.
99 *Influence of Chronic Digitalis Treatment on the Heart. (Einfluss der chronischen Digitalisbehandlung auf das normale und pathologische Herz.) M. Cloetta.
100 *The Menopause and the Heart. (Frauenherz und Klimax.) P. M. Popoff.
101 *Tuberculous Articular Rheumatism. (Tuberkulöser Gelenkrheumatismus.) E. Meichler.
102 Paratyphoid. (Ueber Paratyphus.) A. Schütze.
103 Transmissibility of Blood Diseases. (Uebertragbarkeit von Blutkrankheiten.) H. Hirschfeld.
104 Dangers of Reinjection of Curative Serum. (Gefahr der Reinjektion von Heilserum.) Umber.

98. **Modern Heart Remedies.**—His reviews the various drugs at our disposal, quoting the saying that the skilled physician can be told from the unskilled by the way in which he gives digitalis. He comments on the tendency shown by many physicians to prefer the very latest pharmacologic preparations, and remarks in conclusion that there is great need for a means of influencing the paralysis of the heart and vasomotors in acute infectious diseases, especially pneumonia. Nothing in our present arsenal is absolutely reliable in the collapse and heart failure of the infectious diseases.

Even infusion of adrenalin-saline solution may prove ineffectual.

99. **Influence of Chronic Digitalis Treatment on the Heart.**—Cloetta has recently announced that rabbits treated with digitalis continuously for two years showed no functional or anatomic changes in the organs of circulation that could be attributed to the action of the drug. The preparation was injected subcutaneously, the dosage being gradually increased. The heart did not become enlarged, as might have been expected. The results showed among other things that this chronic treatment with digitalis was not able to transform a functionally weak into a strong heart, except while the drug was being taken. In another series of tests he induced aortic insufficiency by causing the production of acute endocarditis. Part of these animals were then treated with digitalis, and after several months the functioning of the cardiovascular system was compared with that of the controls. These experiments carried on through several years have shown that immediate treatment with digitalis has a favorable action on newly installed endocarditis with a valvular lesion. This influence is displayed not only in the anatomic proportions of the heart, but also in its functional capacity. The hearts of the digitalis animals presented much less dilatation and hypertrophy than the controls not treated with digitalis. The heart in the digitalis rabbits, even with this severe valvular disturbance, the aortic insufficiency, was only 30 per cent. larger than normal, while in the untreated animals it averaged 80 per cent. above normal. Of course, the hypertrophy is a compensating process, but the digitalis evidently keeps it within bounds. As the digitalis can not cure the valvular defect, this favorable influence must be of a functional nature. In patients with endocarditis and incipient valvular trouble, the heart is irritable and does too much or too little work and does not do it right. This condition is favorably modified by the soothing and tranquilizing influence of the digitalis—the "opium of the heart." Cloetta affirms, therefore, that continuous administration of digitalis in recent valvular trouble will restrict the compensating hypertrophy and dilatation to the minimum, while without it, sensory or motor influences are liable to exaggerate the compensating process. A heart in this condition, even with ample compensation, is more liable to insufficiency than one in which the process is kept within due bounds. He adds that several of the untreated endocarditis rabbits succumbed to dropsy in less than six months, while none of the digitalis animals died with signs of heart trouble. He is convinced that symptomatic treatment with digitalis is bound to have a favorable influence in fresh clinical endocarditis. It is certainly worth the attempt, he says, as digitalis managed carefully is entirely free from danger, and given early in this way may perhaps save much more extensive use of the drug in later years.

100. **The Menopause and the Heart.**—Popoff describes the various forms of transient circulatory symptoms which accompany the natural and acquired climacteric, and discusses the treatment. The dilatation of the heart sometimes observed is generally transient, but all these cardiovascular disturbances are liable to do great harm in case of existing lesions, especially uterine fibroma. He uses in treatment hydrotherapy and dieting with arsenic and glycerophosphate in case of much nervous disturbances, with measures to strengthen the heart. He quotes Snegireff to the effect that climacteric sleeplessness and other nervous phenomena may bring the patient to the verge of insanity.

101. **Tuberculous Articular Rheumatism.**—Melchior gives the details of seven cases from his experience and outlines the history of this affection. He thinks it probable that the bacilli are directly involved, although negative inoculation of animals should not decide against the tuberculous nature of the multiple joint affection. Several joints are usually involved, and the course is generally insidious and little influenced by salicylates. He lays great stress on the importance of general treatment. He did not find constricting hyperemia beneficial, but superheated air reduced the pain in the joint. The movements of the joints were so painful that in some cases the affection left ankylosis.

Wiener klinische Wochenschrift.

October 1, XXI, No. 40, pp. 1375-1402.

105 Binding of Complement in Scarlet Fever. (Komplementbindung bei Scharlach.) F. Schleissner.

106 Disappearance of Complement in Experimental Trypanosomiases. (Komplementschwund bei experimentellen Trypanosomosen.) O. Hartoch and W. Yakimoff.

107 *Is Period of Elimination from the Organism of Substances That Have Been Incorporated a Reliable Means for Testing the Functioning of the Kidneys? (Ist die Zeit der Ausscheidung von dem Organismus einverleibten Substanzen zur Funktionsprüfung der Nieren zu verwerten?) Kapsammer.

108 Amyloid Tumors of Tongue. (Amyloidtumoren der Zunge.) J. Helber.

109 *Poisoning and Abortion by Yew. (Vergiftung und Fruchtabtreibung mit Taxus baccata.) E. Glaser.

October 8, No. 41, pp. 1403-1434.

110 *Cutaneous Tuberculin Reaction. (Pirquetsche Tuberkulinreaktion.) Ganghofner.

111 *Comparative Diagnostic Importance of Tuberculin Reactions in Children. (Tuberkulinreaktionen im Kindesalter.) R. Monti.

112 *Differential Cutaneous Tuberculin Reaction in Diagnosis, Pathology and Treatment of Tuberculosis. L. Detre.

113 Non-Specific Disappearance of Opsonin in Serum of Animals with Trypanosomiasis. (Nicht spezifischen Opsoninschwund bei Komplementverarmung des Serums trypanosomenkranker Tiere.) O. Hartoch and M. Willim.

114 *Intermittent Limping in Arms and Legs. (Claudicatio intermittens an den oberen und unteren Extremitäten.) H. Kronenberg.

115 *Neurosis of the Diaphragm. (Phrenokardie.) M. Herz.

107. **The Phloridzin Test of Kidney Functioning.**—Kapsammer here replies in detail to those who have criticized his phloridzin test unfavorably. He insists that the new principle involved is that of the determination of the interval that elapses between the test and the response, this interval being the criterion of the test. It is also an improvement of the indigo-carmine test if the interval before the colored urine appears is also recorded. The phloridzin method has the great advantage that it allows a distinction to be made between anatomically injured kidneys that yet are capable of normal functioning and those which do not functionate properly. The technic was described in THE JOURNAL, Oct. 13, 1906, page 1233.

109. **Infusion of Yew as an Abortifacient.**—Glaser's forensic experience seems to prove that infusion of the *Taxus baccata* has an actual abortifacient power, but that it is extremely poisonous in the doses taken for the purpose. He cites a number of fatalities from its use which have been recorded, and reports a case in which a married woman, apparently healthy, three months pregnant, was found dead with nothing to explain the sudden casualty until chemical examination of the contents of the stomach, preserved in alcohol for six months, elicited a positive response to tests for an infusion of yew. The fetus had evidently died before the mother, which he ascribes to the poisonous action of the yew. Death was evidently very sudden.

110 and 111. **Diagnostic Tuberculin Reactions in Children.**—Ganghofner applied the v. Pirquet technic in 552 cases and is convinced that it is simple and reliable, although in a few instances the reaction was positive when no signs of tuberculosis could be detected at autopsy. Monti has tested the different integumental reactions in 301 children, and states that the Moro technic is less reliable than the others. He applies the cutaneous test, controlling this by the prick reaction (*Stichreaktion*) when differentiation is important, but advocates the Moro technic for ordinary cases.

112. Abstracted in THE JOURNAL, Oct. 17, 1908, page 1362.

114. **Intermittent Claudication in Arms and Legs.**—Kronenberg's patient was a man of 30 and no cause, except possibly excessive smoking, could be discovered for the obliterating endarteritis causing occasional giving out of function in the legs and right arm. The main point in treatment is to avoid injury; a hot bath or application of cold is liable to induce gangrene in such cases. Kronenberg gives from 1 to 2 gm. (from 15 to 30 grains) of potassium iodid daily, with nitroglycerin and inhalation of amyl nitrite. The importance of recognizing this tendency to intermittent limping in an early phase, with prompt treatment, should be impressed on all physicians, he asserts.

115. **Neurosis of the Diaphragm.**—Herz seeks to differentiate a clinical picture characterized by a peculiar disturbance in

breathing, the so-called "heart pain" and palpitations—the whole being the result solely of a neurosis involving the diaphragm—"phrenocardia." The patient complains of a sensation as of mechanical hindrance to breathing; he is unable to breathe freely, although the condition does not suggest dyspnea. The respiration does not become accelerated, and it is possible for the patient to make a deep sighing inspiration and energetic expiration. This sighing breathing may occur at various intervals, and may annoy the patient very much; it is most noticeable when he is agitated. The diaphragm is found to be usually low, lower on the left than on the right side, and all the disturbances are due to a neurotic retraction of the diaphragm. It is not exaggerated by physical exertion. The pain in the heart region resembles the pain of a cramp in the calf. It is located below and to the left of the left nipple, and the patient holds his breath during the pain. The attacks generally occur in the evening. Another symptom is the palpitation or vibration or sense of emptiness in the heart region and there may be other nervous and vasomotor disturbances. Herz ascribes the phrenocardia to emotional factors, as a rule, and treatment should rely mainly on suggestion and soothing hydrotherapy, after removing the cause. The affection responds readily to such measures, he affirms.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart.

LXII, No. 3, pp. 393-643. Last indexed September 5, p. 877.

116 *Etiology and Treatment of Rupture of Uterus. J. Hartmann.
117 Ectopic Heart in Living Child. (Ectopia cordis subthoracic.) M. Greiffenberg.
118 *Posterior Longitudinal Incision of Cervix. (Hintere sagittale Dialision der Cervix uteri.) L. Herzl.
119 Inflammatory Proliferation of Mucosa in Fallopian Tube. (Adenomähnliche Wucherungen bei einer nach vaginaler Totalexstirpation prolabierten Tube.) M. Neu.
120 *Experimental Study of Operative Treatment of Acute Puerperal Peritonitis. W. Zangemeister.

116. **Rupture of the Uterus.**—Hartmann relates some experiences and reviews those reported from other clinics, the findings emphasizing the importance, comparative safety and excellent results of vaginal total extirpation of the ruptured uterus as deserving more extensive application. Removal of the ruptured puerperal uterus by the vaginal route is a comparatively simple operation, while this frees the woman forever from the danger of consequent rupture in the cicatrix. This vaginal operation seems to have been performed in 27 cases besides the two he reports, and 15 of the patients recovered. In 8 of the 14 fatal cases the women were moribund, and when it is considered that so many of the patients recovered when the conditions were apparently desperate the results must be regarded as very satisfactory. Among the cases were some in which the women were almost bloodless or had high fever, placenta prævia, peritonitis, or escape of the entire contents of the uterus into the abdominal cavity. He remarks, in conclusion, that the treatment of rupture of the uterus belongs to the specialist after the first urgent measures.

118. **Posterior Longitudinal Incision of the Cervix.**—Herzl applies the term posterior sagittal discission to the slitting of the posterior wall of the cervix in stenosis of the cervical canal causing dysmenorrhea and sterility, no matter whether the stenosis involves the internal os in consequence of anteflexion of the uterus at an acute angle, or merely the external os is affected. This form of anteflexion of an infantile uterus is a special indication for this discission on the median line. In 22 of the 27 patients in whom this operation was indicated, dysmenorrhea was the complaint, and in 5 sterility. The operation cured the dysmenorrhea in nearly 62 per cent., with partial benefit in 8 cases. In the 41 cases on record in which the operation has been performed for sterility, pregnancy followed in 17.07 per cent. The incision is carried up to the internal os and the mucosa is sutured to the mucosa of the vagina. A suture at the end of the incision is taken sagittal through the mucosa of the cervix to unite it with that of the vagina, thus effectually preventing the growing together of the lips of the incision. The details of his 27 cases are tabulated.

120. **Experimental Study of Operative Treatment of Acute Puerperal Peritonitis.**—Zangemeister advocates combination of serotherapy with removal of the primary infectious focus. The prospects are much more favorable than with either alone. Under all circumstances the entire uterus must be removed if the results are to approximate those obtained in animals. Only the abdominal route permits effectual extirpation of the uterus and adnexa, he says.

Zentralblatt für Chirurgie, Leipsic.

October 10, XXXV, No. 41, pp. 1193-1224.

121 *Method of Expelling Blood from Lower Half of Body. (Zur Blutleere der unteren Körperhälfte.) Momburg.

121. **Momburg's Method of Expelling Blood from Lower Half of the Body.**—Momburg states that the belt drawn tight around the waist, a rubber tube being used for the purpose, is wound around the waist until the pulse in the femoral artery ceases to be perceptible. After each turn of the belt the pulse is tested, and it is not wise to apply more turns of the belt than are needed to suppress the pulse in this artery. It is wiser also to apply a band to the leg and thigh on each side so that the belt and these bands can be loosened in turn, thus allowing the blood to return less abruptly to the lower half of the body. His experience has shown that the method is applicable under nearly all conditions. Very muscular persons may require more turns of the constricting belt—he has never had to make more than four turns. He has applied this technic in three cases, leaving the belt in place for 30 or 43 minutes. The pain of the constriction he relieves with a little morphin. The blood can be expelled from the pelvis almost entirely in this way if the legs are wound up from the toes first, to expel the blood from them. After the constricting belt is applied, the bandages on the legs are removed and the patient is placed in a position so that the pelvis is considerably higher than the legs, which are allowed to hang down. The blood left in the pelvis then runs down into the legs.

Zentralblatt für Gynäkologie, Leipsic.

October 10, XXXII, No. 41, pp. 1329-1360.

122 Perforation of Uterus with Injury of Intestine. (Zur Kasuistik der Uterusperforationen mit Darmverletzung.) P. T. Ssadowski.
123 *Internal Secretion of Corpus Lutem and Reciprocal Relations of Ovary and Pancreas. (Eierstock, Corpus luteum und Langerhans'sche Zellinsein.) S. Rebaudi.
124 Radical Operation for Inversion of the Vagina and Enterocele After Vaginal Hysterectomy. C. H. Stratz.
125 *Absorbing Power of the Vagina, Especially for Tuberculin. (Resorptionsfähigkeit der Scheide.) M. Schwab.
126 Large Fibroma in Abdominal Wall. Plastic Operation. (Bauchdeckenfibrom.) T. Schultz.
127 *Hysterectomy for Menstrual Reflex Epilepsy. (Totalexstirpation aus seltener Indikation.) Weinberg.

123. **Functional Connection Between Ovary and Pancreas.**—Rebaudi has been conducting extensive research at Bossi's clinic at Genoa to study the functional connection between the ovaries and pancreas, and believes that he has demonstrated that the islands of Langerhans form an integral part of the great system of organs with an internal secretion. When the functioning of the corpus luteum was deficient, the islands of Langerhans in the pancreas became hypertrophied and were evidently doing extra work; they also showed marked changes after removal of both ovaries, and similar changes were observed after destruction of the corpora lutea alone. He accepts this as evidence that the corpus luteum must be regarded as an organ of internal secretion, and as the chief if not the only element of the internal functioning of the ovary.

125. **Slight Absorbing Faculty of the Vagina, Especially for Tuberculin.**—Schwab reports negative results from his attempts to utilize the vagina for diagnostic application of tuberculin. Only extremely soluble substances, like the iodin and salicylate salts and dyes, were absorbed. No pharmacologic action was apparent, even with 5 gm. of paraldehyd, 4 of chloral, 3 of tannin or 2 of salol. Glycerin is not a proper vehicle, he says, when the aim is to promote absorption, as the glycerin induces a current outward. Only with extremely soluble drugs, such as iodin, is its use permissible.

127. **Reflex Epilepsy from Menstrual Influences.**—Weinberg's patient was a woman of 38, a v-para, who for seven years had had epileptiform seizures at the onset of the menses. He removed the uterus and adnexa. Cystic degeneration of the

ovaries was found. During the five months since there has been no recurrence of the disturbances. He ascribes them to reflex epilepsy proceeding from the lower abdomen.

Gazzetta degli Ospedali e delle Cliniche, Milan.

October 5, XXIX, No. 119, pp. 1257-1272.

128 *Lime in Origin and Treatment of Convulsions. (Il calcio nella patogenesi e terapia delle forme convulsive. Teoria paratiroidea.) T. Silvestri.
129 *Anasarca from Retention of Urine. E. Magni.
130 *Smith's Venous Souffle. (Il soffio venoso di Smith.) F. Laureati.
131 *Tuberculous Peritonitis and Treatment with Iodized Gelatin. (Della peritonite tubercolare e sua cura medica mediante l'iodogelatina Sclavo.) U. Masi.

128. **Lime in Treatment of Convulsions.**—Silvestri presents arguments and the results of experiences in various countries which demonstrate that the tendency to convulsions is apparently the result of a lack of lime in the nervous system. Experimental and clinical research seems to indicate that the convulsions of infancy and pregnancy, as well as epilepsy, are the results of deranged metabolism of lime with a permanent lack of sufficient proportions in the nervous system. On the other hand, eclampsia in certain cases is the direct and exclusive consequence, he is convinced, of a parathyroid affection. Experimental studies confirm and reproduce what is observed in the clinic. His experience with seventeen epileptics treated with lime sustains this view of its etiologic importance. He administered calcium hypophosphite, giving daily 1.5 gm. (22.5 grains) for adults and one-tenth of this dosage for infants.

129. **Anasarca from Retention of Urine.**—Magni reports from Ruggi's clinic at Bologna two cases in which anasarca developed suddenly with retention of urine from enlargement of the prostate. When the patients entered the clinic the skin was dry, the pulse rapid, with intense thirst, dyspnea, albuminuria, and a systolic murmur, with cells and tube casts in the urine—the symptoms indicating a cardiac affection with nephritis, and the condition so serious that operative measures could not be considered. Catheterization of the bladder was followed by prompt subsidence of the anasarca, and in a few days nothing was left of the syndrome except the enlarged prostate which then could be operated on.

130. **Smith's Venous Souffle.**—Laureati has examined 363 children to learn the prevalence of Smith's sign of abnormal conditions in the thoracic glands. The head is turned back so that the face forms a right angle with the trunk. The stethoscope applied to the manubrium reveals a venous souffle coinciding with the systole of the heart. This sound gradually vanishes as the head is raised. Smith explains the phenomenon as due to the compression of the left innominate vein from enlarged glands. Laureati found this sign positive in 111 of the 363 children. The proportion of positive findings with this sign was larger than with Roentgen examination, and it thus revealed in a number of cases abnormal conditions in the thorax, which otherwise would have escaped detection. Negative findings are not conclusive, but positive findings indicate glandular trouble, generally of tuberculous origin.

131. **Iodized Gelatin in Tuberculous Peritonitis.**—Masi administered iodized gelatin by the mouth and applied iodo-iodid cintment to the abdomen in the three cases of tuberculous peritonitis here reported, and he ascribes the complete recovery to these measures. All were of the form with effusion and the iodized gelatin was well tolerated, while its action was prompt.

Policlinico, Rome.

October 11, XV, Practical Section, No. 41, pp. 1285-1316.

132 Differential Diagnosis Between Hydatid Cyst and Abscess in the Liver. (Diagnosi differenziale fra cisti da echinococco e ascesso del fegato.) G. Moro.

Norsk Magazin for Lægevidenskaben, Christiania.

September, LXIX, No. 9, pp. 833-940.

133 *Treatment of Lupus in Private Practice. (En ogsaa i den almindelige private praksis lettere gjennemførbar lupusbehandling.) C. Boeck.
134 Application of the Tonometer. (Tonometri.) H. Schlötz.
135 Orthodiagraphic Examination of Organs in Chest and Abdomen. (Om den orthodiagraphiske methodes anvendelse ved undersøgelse af bryst- og abdominalorganer.) S. A. Heyerdahl.
136 *Milk from Cows with Udder Affections. (Bør det være forbudt at sælge melk fra kjør med jurbetændelse?) V. Fürst.
137 The Milk Epidemic at Christiania. Melke-epidemien i Kristiania.) Y. Ustvedt.

October, No. 10, pp. 941-1036.

138 *Milk Vegetable Diet in Pernicious Anemia. L. Nicolaysen.
139 *Blastomycetes in the Blood. (Blastomyceter i blodet.) Vedeler.
140 Subcutaneous Fat Tissue Necrosis. (Subkutan fedtvævsnekrose.) O. Berner.
141 Study of the Systole of the Auricle. (Om forkammersystolen.) S. Schmidt-Nielsen.
142 Medical Science in the Northland During the Middle Ages. (Nogle bemerkninger om middelalderens medicinske Videnskaben i Norden.) F. Gron.

133. **Treatment of Lupus by the General Practitioner.**—Boeck has found that when pyrogallol is applied in a mucilaginous vehicle it is free from the disadvantages of other technics for local treatment of lupus. He makes the mucilage so that it will rapidly harden and form a compact covering over the lesion. A good formula for the purpose is:

R.			
Pyrogallolis			
Resorcinolis			
Acidi salicylici	āā	3	gr. xlv
Mucilaginis acaciæ			
Talci pulveris	āā	2|5	gr. xxxviiss
Glycerini		30	gtt v

This is applied about 0.5 mm. thick and covered with a thin veil of cotton which hardens in the mucilage and protects it. Anything thicker becomes stiff and uncomfortable. It is a great advantage of this method of treatment that it is unnecessary to pay strict attention to the limits of the lesion. He leaves the application untouched for a week and then moistens and removes it, applying in place of the pyrogallol a lead salve for a time. When the surface is raw from removal of the scab or from the action of the caustic, he applies a local anesthetic to the part before each application of the salve or mucilage. When the caustic is to be applied again to the same spot, he allows granulations to form for a time, but not enough for complete healing. The comparative harmlessness and painlessness of this technic and the ease with which it can be applied to any part, even those regions which are particularly inconvenient for local treatment, and the possibility of applying this treatment directly, without any preliminaries, are important advantages in its favor for the general practitioner, while his experience with it in numbers of cases has thoroughly established its efficacy. In one case the lupus on the ear had resisted Roentgen treatment, but healed in eighteen days under this pyrogallol mucilage, and there has been no recurrence during the year since. In another case a boy of 10 had lupus in and on the nose which had become a large shapeless mass. Under this treatment for two and a half months the lupus retrogressed so completely that no one now would suspect that he had had any affection. This result was obtained without general anesthesia and almost without the least pain. Boeck generally concludes the course of treatment with the application of a 15 per cent. pyrogallol salve for a few days, using a 10 per cent. strength for the interior of the nose, and alternating with the lead salve tampons, preceded by application of a local anesthetic. The salve is never so painful applied inside the nose as on the skin, and he prefers the salve to the mucilage for treatment of the interior of the nose. The main point in treatment is to root out the last local traces of the disease even if this does not always prevent a recurrence, as the virus may still be circulating in the blood.

136. **Should Milk be Sold from Cows with Udder Abscesses?**—Fürst describes a small epidemic of gastrointestinal disturbances that followed the drinking of milk from a cow with a streptococcus process in the udder, and urges that the selling of such milk should be prohibited. He remarks that those persons who are opposed to prohibitive measures in regard to udder lesions in cows would certainly not like to have to drink milk containing pus from abscesses of other kinds. Another communication in the same number refers to an epidemic of sore throat, which was likewise traced to a streptococcus udder affection in a cow. Streptococci found in the udder and in the throats of the patients behaved under the microscope, in stains and in inoculations of mice as identical in every respect.

138. **Milk Vegetable Diet in Pernicious Anemia.**—Nicolaysen has been practically applying Grawitz' assumption that pernicious anemia is the result of production of toxins from excessive amounts of albumin in the diet. Grawitz published some time ago the histories of five cases of pernicious anemia in which remarkable improvement was obtained by lavage of the stomach and restriction of the diet, with nutritive enemas until the acidity of the hypoacid stomach secretion returned to normal. Nicolaysen treated a man of 33 on these principles except that he did not attempt lavage of the stomach owing to the patient's repugnance. Blood examination showed 1,230,000 reds, hemoglobin, 50 per cent. Diet was restricted to milk and vegetables, bread and fruit, and arsenic was taken continuously. In two months the reds had increased to 3,410,000 and the hemoglobin to 80 per cent., the improvement continuing until full earning capacity was restored in two more months; and it has persisted during the four years since. The second patient was a man of 26 who had suffered from occasional headache and vertigo since boyhood, and had always been rather pale and thin. When first seen the reds numbered 2,200,000; hemoglobin, 45 per cent. He was placed on a restricted milk-vegetable diet with iron and arsenic, but the pernicious anemia continued a progressive course unmodified. These experiences confirm the importance of bearing Grawitz' statements in mind when confronted with a case of pernicious anemia, as a certain proportion of such cases certainly owe their origin to disturbances in the digestive tract, and restoration to normal in this respect is followed by rapid and permanent recovery.

139. **Blastomycetes in the Blood.**—Vedeler has found vegetable cells, blastomycetes, in fresh human blood and urine using a technic which gave an unusually thick layer of blood for examination under the microscope, staining with Lugol's solution and mounting in balsam. He examined 221 patients with various gynecologic affections, or pregnant women, and found elements such as he illustrates in all but 15, also in the umbilical cord of 2 new-born children. He has found these elements also in the saliva, in breast milk and in leucorrhea, and in three calves and three mice. He found these botanical cells also in benign and malignant tumors. He asks in conclusion whether bacteriology has not been proceeding in too one-sided fashion hitherto.

Upsala Läkareförenings Förhandlingar.

XIII, No. 6, pp. 397-534. Last indexed August 29, p. 869.

143 *Primary Tumors in the Heart. (Bidrag till kännedomen om de primära hjärttumörerna.) F. Ericsson.
144 *Milk-Secreting Cyst in the Breast. (Bidrag till de s. k. galaktocèles genes.) T. J. Hellman.
145 *Solid Teratomas of the Ovary. C. O. Forselius.
146 *Involution of the Thymus. (Studier öfver thymusinvolutionen.) A. Jonson.

143. **Primary Tumors in the Heart.**—Ericsson has collected from the literature 41 cases of neoplasms in the heart, and describes a fibrosarcoma personally observed. Also a pseudotumor which was in reality a polypous thrombosis undergoing organization. These tumors seem to occur more frequently in the septum, suggesting that they originated in aberrant cells. His patient was a man of 38 who had always had some heart trouble and was admitted to the hospital with the diagnosis of myocarditis complicated by bronchitis and pulmonary edema. Autopsy revealed a polypous tumor in the left ventricle 7 x 3.5 to 5 x 2 to 4 cm., and there was complete adhesion of the sheets of the pericardium.

144. **Milk-Secreting Cyst in the Breast.**—Hellman's patient was a girl of 17 nursing a six-months babe. A tumor about the size of a nut was noticed in the second month of pregnancy, and had greatly increased in size. It was evidently a mammary adenoma, and it participated in the secretion of milk. The lack of outlet for the secretion caused necrosis of the tissue inside the neoplasm, which involved the epithelial tissue and was beginning to encroach on the interstitial. If the necrosis had proceeded further, the results would have been a typical "butter cyst," "solid galactocele" or "cheesy cyst." He reviews the literature on these milk cysts, and relates for comparison a case of pure mammary adenoma which seemed to show under the microscope complete retrogression of a previously necrotic tumor.

145. **Solid Teratomas of the Ovary.**—Forselius' first patient was a woman of 24. She is in good health eighteen months after removal of an ovarian dermoid cyst. The second patient was a child of 3, and the first symptoms were noted only three weeks before the laparotomy. The tumor measured 20x13x6 cm. and contained tissue mostly of mesodermal origin, although there was connective tissue suggesting sarcoma and myoma with glia tissue. In the third case, metastases in the vagina, abdomen and peritoneum were found at the autopsy of a woman of 32, nine months after removal of a primary ovarian teratoma. The metastases showed the same teratoid elements, as he describes in detail. This malignant development of the teratoma is ascribed to the polygonal cells found throughout the metastases, which he regards as undifferentiated cells of such an early embryonal type that they do not belong to any germinal layer. He warns, therefore, that the presence of these undifferentiated cells in such a tumor should suggest a malignant character. The article is illustrated.

146. **Research on Involution of the Thymus.**—Jonson gives an illustrated description of considerable research on involution of the thymus in rabbits. The special research described was on the involution during starvation and the regeneration of the gland when feeding was resumed.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

GENERAL PATHOLOGY. By Ernst Ziegler, Professor of Pathologic Anatomy and of General Pathology in the University of Freiburg in Breisgau. Translated from the Eleventh German Edition (Gustav Fischer, Jena, 1905). Edited and Brought up to Date by Alfred Scott Warthin, Ph.D., M.D., Professor of Pathology and Director of Pathologic Laboratory in the University of Michigan, Ann Arbor. Cloth. Pp. 781, with illustrations. Price, $5.50. New York: William Wood & Co., 1908.

INTRODUCTION Á L'ÉTUDE CLINIQUE ET Á LA PRATIQUE DES ACCOUCHEMENTS: Anatomie—Présentations et Positions—Mécanisme—Toucher—Manoeuvres—Extraction du Siège—Version—Forceps. Par L. H. Farabeuf et Henri Varnier. Paper. Pp. 488, with illustrations. Price, $3.00. Paris: Georges Steinheil.

A MANUAL OF OBSTETRIC TECHNIC. By Joseph Brown Cooke, M.D., Adjunct Professor of Obstetrics in the New York Polyclinic Medical School and Hospital. Cloth. Pp. 253, with illustrations. Sixth Edition. Price, $1.25. Philadelphia: J. B. Lippincott Co., 1908.

OBSTETRIC AND GYNECOLOGIC NURSING. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. Cloth. Pp. 436, with illustrations. Third Edition. Price, $1.75. Philadelphia: W. B. Saunders Co., 1908.

A TEXT-BOOK OF DISEASES OF WOMEN. By Charles B. Penrose, M.D., Ph.D., Formerly Professor of Gynecology in the University of Pennsylvania. Cloth. Sixth Edition. Pp. 550, with illustrations. Price, $3.75. Philadelphia: W. B. Saunders Co., 1908.

TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Cloth. Pp. 557, with illustrations. Price, $3.00. Philadelphia: W. B. Saunders Co., 1908.

REFRACTION OF THE EYE. By Harry C. Parker, M.D., Clinical Professor of Ophthalmology, Indiana University School of Medicine, Indianapolis. Cloth. Pp. 201, with illustrations. Price, $1.25. Philadelphia: W. B. Saunders Co., 1908.

OBSTETRICS FOR NURSES. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Cloth. Pp. 512, with illustrations. Price, $2.50. Third Edition. Philadelphia: W. B. Saunders Co., 1908.

CLINICAL DIAGNOSIS. By Charles Phillips Emerson, A.B., M.D., Late Resident Physician, The Johns Hopkins Hospital. Cloth. Second Edition. Pp. 686, with illustrations. Price, $5.00. Philadelphia: J. B. Lippincott Co.

REFERENCE HAND-BOOK FOR NURSES. By Amanda K. Beck, Graduate of the Illinois Training School for Nurses. Flexible Leather. Pp. 199. Second Edition. Price, $1.25. Philadelphia: W. B. Saunders Co., 1908.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, United States Army. Second Series. Vol. xiii. Periodicity-Prussia. Cloth. Pp. 929. Washington: Government Printing Office, 1908.

SURGICAL MEMOIRS AND OTHER ESSAYS. By James G. Mumford, M.D., Instructor in Surgery, Harvard Medical School. Cloth. Pp. 358, with illustrations. Price, $2.50. New York: Moffat, Yard & Co., 1908.

THIRD ANNUAL REPORT OF THE ASSOCIATED COMMITTEES OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE PREVENTION AND CONTROL OF TUBERCULOSIS. July, 1908. Paper. Pp. 63.

MEDICAL COMMUNICATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY. Vol. xx. No. III, 1907. Paper. Pp. 758, with illustrations. Boston: David Clapp & Son, 1907.